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PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. I. MARCH AND APRIL, 1841. No. 1.

LIST OF OFFICERS FOR 1841.

PRESIDENT.
William Hembel.

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John Price Wetherill,
Samuel George Morton, M.D.

CORRESPONDING SECRETARY.
Robert Bridges, M.D.

RECORDING SECRETARY.
A. Denman Chaloner, M.D.

LIBRARIAN.
Alfred L. Elwyn, M.D.

TREASURER.
George W. Carpenter.

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John S. Phillips,
Robert Pearsall,
George C. Leib, M.D.

AUDITORS.
William S. Vaux,
A. D. Chaloner, M.D.
Robert Pearsall.

COMMITTEE OF PUBLICATION.
Alfred L. Elwyn, M.D.
William S. Vaux,
Joseph Carson, M.D.
Edward Hallowell, M.D.
John Simmons.

STATED MEETING, MARCH 2.

VICE PRESIDENT MORTON, in the Chair.

DONATIONS TO MUSEUM.

Picus Nuttalii, (Audubon,) California.

Icterus tricolor, (Audubon,) California.

Podiceps cornutus (young female,) and a box of Insects from China.—From Mr. W. Gambel.

DONATIONS TO LIBRARY.

Philosophy of Plants, by Decandolle and Sprengel. Purchased by order of the Academy.

Discourse on the Objects and Importance of the National Institution for the promotion of Science, established at Washington, 1840. By Joel R. Poinsett, Secretary of War.—From Mr. Francis Markoe, Jr.

WRITTEN COMMUNICATIONS.—Dr. Morton read a letter dated Monrovia, Africa, December 20, 1840, from Dr. S. M. E. Goheen, acknowledging the reception of his notice of election as correspondent of the Academy.

Also a letter from Alexander Maclure, Esq., dated New Harmony, Indiana, February 18th, 1841, stating the reception by Dr. D. D. Owen and himself of their notices of election as corresponding members.

The Corresponding Secretary read a letter from Mr. Francis Markoe, Jr., accompanying the Discourse of Mr. Poinsett, and the Constitution and By-laws of the National Institution, presented this evening; and expressing a wish for the co-operation of the Academy in the objects of the National Institution. Also a letter from Dr. George Engelman, dated St. Louis, Missouri, February 13th, 1841, acknowledging the reception of his notice of election as a correspondent of the Academy.

VERBAL COMMUNICATIONS.—Dr. George C. Leib made some remarks upon the "construction of the nictitating membrane of the Eye," and exhibited specimens obtained

from the eyes of the Falco lagopus: he also communicated the fact, that the bird lived at least an hour after it had received a shot through the ventricles of the heart, allowing the escape of blood; which fact was certain from the kind of shot perforating the heart being of that size used at the first fire only; the bird being brought to the ground by a subsequent discharge.

Dr. Goddard also made some remarks upon the anatomy of this membrane, and the uses to which it is adapted.

STATED MEETING, March 9.

MR. LUKENS in the Chair.

DONATIONS TO MUSEUM.

Thalassidroma Wilsonii, Stormy Petrel, from the Pacific Ocean.—From Mr. J. K. Townsend.

A series of beautifully mounted water-birds, with the case containing them, was presented by Dr. George C. Leib; viz.: Anas clypeata; Anas domestica; Anas acuta; Anas Americana, (males,) from New Jersey; Anas discors, (female) Pennsylvania; Anas crecca, (male and female) New Jersey; Fuligula omllissima, (male and female) Massachusetts; Fuligula rubida, (young male) Pennsylvania; Fuligula valisneria, Fuligula albeola, Fuligula glacialis, Fuligula marila, Anas stepera, Fuligula clangula, Uria Brunnichii, Larus argentatus and Fuligula farina, (males) all from New Jersey.

DONATIONS TO LIBRARY.

Six Nos. (91 to 96) of the Journal of the Asiatic Society of Bengal, for 1839—July to December.—From the Society.

American Journal of Science and Arts, conducted by Benjamin Silliman, M. D. L.L.D., &c. &c., aided by Benjamin Silliman, Jr. A. M., Vol. XL. No. 1. January, 1841.—In exchange for the Journal of the Academy.

Report of the Commissioners for the exploration and survey of the North-eastern Boundary. Printed by order of the

26th Congress, Washington, D. C., February 9, 1841.—From Major Graham, U. S. Topog. Eng.

Five copies of the Constitution and By-laws of the National Institution for the Promotion of Science, established at Washington, May, 1840.—From Col. J. J. Abert, U. S. Top. Eng.

VERBAL COMMUNICATIONS.—Dr. Chaloner stated that Col. Abert, of Washington, had in his cabinet a specimen of Anthracite Coal, in the rhombic form, of unusual size, which had been obtained from France, and appears to sustain the mineral origin of coal.

Prof. W. R. Johnson remarked that he had in his collection specimens of Anthracite Coal in the forms of rhombs and cubes.

BUSINESS BY SPECIAL RESOLUTION.—Prof. Johnson offered the following resolution, which was unanimously adopted: Resolved, that the thanks of the Academy be presented to Dr. George C. Leib, for the elegant and valuable collection of specimens in Ornithology, together with the accompanying case, which have been this evening presented to the Society.

STATED MEETING, MARCH 16.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

A collection of Fossils—seven specimens—from the Desert of Atacama, south of Peru, with three specimens of rocks from the adjacent islands, and another from the summit of the Andes. The fossils appear to belong to the Newer Pliocene, and consist of shells which are identical with existing species, and especially the Pecten purpuratus.—Presented by J. Frampton Watson, Esq.

DONATIONS TO LIBRARY.

Dissertations relating to the Antiquities, Arts and Sciences of Asia. By Sir William Jones and others. 8vo. 1792.—Presented by Dr. Morton.

A memoir of the Life and Character of the late Joseph Parrish, M. D., read before the Medical Society of Philadelphia, October 23, 1840, by George B. Wood, M. D.—From Dr. Morton.

Reports of the Special Agent of the Lead Mines, relative to the sale or future management of the Mineral Lands of the United States. Printed by order of the 26th Congress. Washington, January 23, 1831.—From Dr. Morton.

The First Annual Report of the Geological Survey of Ohio, by W. W. Mather.—From the Author.

VERBAL COMMUNICATIONS.—Professor Johnson made some remarks in relation to the specimens presented by Mr. J. F. Watson this evening; and stated that Mr. Watson had counted parts of forty skeletons of fossil whales, in the desert of Atacama, two miles south of Los Lobos; some of the vertebræ being from twelve to eighteen inches in diameter.

STATED MEETING, MARCH 23.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

Annual Report of the State Geologist of Michigan, 1840, by Dr. D. Houghton.—From the Author.

Discovery of Vauquelinite, a rare ore of Chromium, in the United States: also an account of some genera and species of North American Plants, by J. Torrey, M. D.—From the Author.

Elements of Conchology; or the natural history of Shells, by Thos. Brown.—From Dr. Morton.

On the morbid anatomy of the mucous and serous membranes, by Thomas Hodgkin, M. D., 8vo. London, 1840. Vol. I.—From the Author.

Report of the survey and exploration of the Coal and Ore lands of the Alleghany Coal Company, in Somerset county, Pennsylvania, by W. R. Johnson, A. M.—From the Author

STATED MEETING, APRIL 6.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Twenty-eight geological specimens and organic remains from Little Rock, Arkansas —From Dr. Engelman, of St. Louis.

A fine specimen of Red pipe stone from Coteau de Prairie, Sioux county.—From J. N. Nicollet, Esq.

Ten specimens of Minerals from Leiperville, Delaware county, Pennsylvania.—From Mr. L. W. Williams.

Masonite, (new mineral) from Natic Valley, Rhode Island. New red sandstone, with Gypsum, Tobique river, New Brunswick. Chlorophyllite, (new mineral) Unity, New Hampshire. Copper Pyrites and Tremolite, from a copper mine at Warner, New Hampshire. Tertiary fossil shells, from Westbrook, Maine, viz.: Astarte castanea, Saxicava distorta, Nuclea Portlandica, Nuclea Jacksonii, (Gould): and a fossil tooth from the tertiary clay of Gardiner, Maine.—Presented by Dr. Chas. T. Jackson.

A specimen of the Mason Spider, with its nests; from the south of France.—Presented by Jas. Saul, Esq. of New Orleans.

DONATIONS TO LIBRARY.

A Second Memoir on the Laws of Storms in India. By Henry Piddington, Calcutta, 1840.—From the Author.

Transactions of the American Philosophical Society, Vol. VIII. Part II. (New Series.)—From the Society.

Voyage de F. Hornemann dans l'Afrique Septentrionale, 8vo, Paris, 1803.—From the late Wm. Maclure, Esq.

Ornithologie du Gard, et des Pays circonvoisins, par J. Crespon, 8vo. Nismes, 1840.—From James Saul, Esq.

A Discourse on the Natural History of the Plants called Gramineæ by W. Darlington, M. D.—From the Author.

Third Annual Report of the Geology of Maine, 1837, by Dr. Chas. T. Jackson.—From the Author.

Second Annual Report of the geology of the public lands belonging to Maine and Massachusetts, by Dr. Chas. T. Jackson.—From the Author.

Report on the agricultural and geological survey of the State of Rhode Island, by Dr. Chas. T. Jackson, 1839.—From the Author.

Systema Regni Animalis, by John Christopher Exleben; et Prodromus Mammalium et Avium.—Purchased by order of the Academy.

Written Communications.—The Corresponding Secretary read a letter from Henry Piddington, Esq., dated Calcutta, July 26th, 1840, in relation to the works presented by him this evening: also a letter from Mr. L. W. Williams of Leiperville, Delaware county, Pennsylvania, in regard to the minerals presented by him this evening, and a proposed exchange of specimens.

Verbal Communications.—Professor Johnson made some remarks in relation to the apparent tendency of Anthracite coal to assume crystalline forms; and exhibited a specimen of the rhombic form.

Professor H. D. Rogers observed, that in his explorations of the coal formations of Pennsylvania, he found he could trace this tendency to three mechanical causes, viz: 1st. to planes of deposition; 2dly. to transverse planes or joints; 3dly. to faults.

By special permission, Prof. Johnson in the chair,

Dr. S. G. Morton made some observations on a mode of ascertaining the internal capacity of the human cranium, by means of the tin tube and graduated rod, as described by him in Crania Americana, page 283.

The material hitherto used by Dr. Morton for the purpose of filling the crania, was white pepper seed, which was selected on account of its spherical form, and the general uniformity in the size of the grains; in these respects, however, there is sufficient diversity to occasion considerable variation in the results of several successive measurements of the same head, especially when taken by

different persons. This variation was sometimes not less than three or four cubic inches; making it desirable to use some other bodies in place of the pepper seeds. Dr. Morton then tried leaden shot of the size called BB., measuring $\frac{1}{8}$ of an inch in diameter; which being perfectly smooth and spherical, of uniform size, and therefore not liable, like the seeds, to variations from packing, were found to answer the purpose in every particular. In using the shot, it is necessary to fill the skull completely, by shaking it, and by pressing the shot down with the finger and the end of the funnel introduced into the foramen magnum, until all the cavities and sinuosities are filled. When this is accomplished, the shot being transferred to the tube, will give the capacity of the cranium in cubic inches, and with so much accuracy, that in six successive measurements of the same skull, the results did not vary more than half a cubic inch; a degree of accuracy which has not been attained by any former method. An experiment with the apparatus was then made, in the presence of the members, which corroborated the statements already made. Dr. Morton informed the Society, that he was now engaged in ascertaining by these means, the capacity of the cranium, as indicative of the size of the brain, in the different races of men, and will report the results for publication in the proceedings of the Academy.

STATED MEETING, APRIL 13.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

A specimen of Mountain Leather, from New Brunswick, N. Jersey.—From Dr. L. C. Beck.

Five specimens of Belemnites Americanus; three of Terebratula Sayi; seven fossil bones; the tooth of a Crocodile; two Shark's vertebræ, from the green sand formation of New Egypt, in N. Jersey.—From the Rev. James McFarland.

Two splendid specimens of the Phasianus Argus, (male and female,) from India.—From Dr. George C. Leib.

A branch of the Auracaria Chilensis, from Chili.—From Mr. J. Frampton Watson.

DONATIONS TO LIBRARY.

Journal of the Asiatic Society, (Nos. 16, 17, 18,) for 1840.—From Dr. Morton.

First Memoir on Porcelain Earths, by Alexander Brongniart.—From Dr. Morton.

View of the soil and climate of the United States, by C. F. Volney. 8vo. Philadelphia, 1804.—From Dr. Morton.

Bulletin of the National Institution. Washington, 1840.—From the Institution.

Annual Report of the Geology of Maryland, for 1840, by J. F. Ducatel.—from the Author.

Geological Survey of Michigan, for 1839 and 1840, by Dr. D. Houghton.—From the Author.

First and Second Annual Reports of the Geological Survey of Ohio, for 1838, by W. W. Mather.—From the Author.

Professor Johnson offered some observations on the mechanical structure of Coal, with evidences of the contemporaneous origin of its various kinds.

The question of the identity and contemporaneousness of the two great divisions of the coal measures of Pennsylvania, has sometimes occupied the attention of geologists. A similar question is occasionally agitated in Europe, in reference to the Anthracite and Bituminous coal fields of that quarter of the world.

Among the arguments in favour of the contemporaneous deposition of the coal in the two regions, those which are derived from the similarity of the accompanying measures or members of the coal series in the two regions, and the resemblance or identity of the fossil organic remains accompanying the coal in both cases, are not the least weighty. The presence of large bodies of carbonate of iron interposed among the coal beds in both coal districts, is an analogous circumstance strongly corroborative of the opinion that both varieties of coal were produced under circumstances at least strongly resembling each other.

Another circumstance favourable to the supposed similarity of circumstances which accompanied the deposition of anthracite and bituminous coal, is the resemblance in mechanical structure of the two kinds. This may, at the first enunciation, seem somewhat

startling; especially since the terms heavy, hard and tough, are generally applied to the one, and light, soft and friable or tender, to the other. It is nevertheless true, that strong mechanical resemblances exist; and the more minutely we examine the two varieties, the more shall we be impressed with the conviction of the importance of the resemblance.

In the first place, the coal of all coal measures has a series of partings parallel to the floor or bottom of the bed on which it rests, and to the cover or roofing under which it lies. These are as distinct in inclined and vertical beds as in those which still remain horizontal.

In the second place, the connection between the coal and its underlying slate, as well as with its top slate, is so definite and well understood, that it serves to determine the true original position of coal beds, which have been so far disturbed as to be turned nearly upside down; of which examples are not wanting. These characteristics are found in beds of both kinds of coal.

In the third place, there is most commonly a fracture or division of the coal in some direction (which, for the same bed, is generally continuous,) and nearly at right angles to the planes of deposition.

Fourth, a third series of divisions by vertical planes, called cross partings, inclined to the last mentioned. This system of planes is not always continuous throughout the bed, but varies in the different plies.

The principal vertical divisions are known to miners by the names of "cleats" or "slines," and sometimes by that of "grains." The direction in which these run, seems to determine the manner of working out the coal; for in attempting to separate large masses from their natural position by means of wedges, it is only in the direction of the cleats that the separation can take place. In inclined beds, from which the coal is to be extracted by a *slope* or rail-road laid down on the floor of the bed, it is a great convenience to have the cleat lie in a direction diametrically across that of the slope, or in conformity with the *strike* of the bed; for then in running a drift from the bottom of the slope horizontally along the bed, and afterwards carrying the workings upward, the cleat will always face the miner, and he will be enabled to obtain heavy falls of coal by undermining and wedging down.

In most bituminous coals, and in not a few anthracites, the "cleavage of the laminæ," or what I have chosen to call surfaces of deposition, are sufficiently distinct, and afford ready partings to separate masses into small pieces. In some of the harder anthracites, however, these surfaces are nearly obliterated, being distinguishable only by different shades of black. The actual cleavages of the coal, in such instances, seldom take place along the surface of deposition; but on igniting the specimen, we may generally obtain partings in those natural seams. I exhibit an example in coal of Hazleton.

The regular slines also, in anthracite, are sometimes so far obliterated as to be only developed by strong heat or partial combustion. They are then shown by the thin, white, shining laminæ of earthy matter, which mark two opposite sides of a lump of half burnt coal.

The absolute direction of the cleat is very various. At the Laurel Hill mines, in Hazle creek valley, it is believed to be about north 60° east.

In some beds of coal which I discovered and examined on the West Branch of the Susquehanna, it is due east and west by compass.

In the Middleton mine coal, in the Northerly part of England, it is from N. 20° West to N. 32° W.

The second, or "short cleat," in opposition to the "long cleat," which extends for great distances, is the cross parting already spoken of, and not unfrequently runs perpendicularly to the directions of both the "cleavage of the laminæ and to the long cleat." This is seen both in bituminous coals and anthracites.

Another circumstance to which I would refer, as indicative of the similarity of origin and correspondence in character, between bituminous coals and anthracites, is the correspondence of the two, in respect to the composition of the ashes of the two kinds. Silica, alumina, oxide of iron, with small amounts of lime, magnesia, and occasionally of oxide of manganese, are the ingredients of the ashes of both the kinds of coal. The proportions vary, not only in the different kinds of coal, but also in the several plies of the same bed, both in the bituminous and anthracite districts. In the anthracite, the diversity of composition is marked by the colour of the different streaks after partial incineration.

Another resemblance between the two kinds is that in the anthracite beds, spaces partially vacant are found to contain masses, with a puffy aspect on the exterior, so strongly resembling coke, that it might be difficult at the first glance to distinguish a fragment of it from a piece of artificial coke. Natural coke is also found in connection with beds of bituminous coal, especially where the latter are in close proximity with primitive strata—as in the mines of Virginia.

When coal contains a large proportion of earthy matter, and is deposited in thin laminæ, it will, in the state of anthracite, be found to part with great difficulty in the direction of the surfaces of deposition. It will then be seen to give fractures, developing a multitude of small conchoidal surfaces. This is by the miners termed bony coal; and that it well deserves its name may be evinced by its actually being so hard as sometimes to strike fire with steel.

Coal occasionally assumes the appearance of well defined rhombic prisms and octaedra, occasionally with striated surfaces, in which cases, though the cleavages be difficult and obscure, they are nevertheless practicable.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. I. MAY, 1841. No. 2.

STATED MEETING, MAY 4, 1841.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

A collection of Marine, Fresh-water, and Land Shells. From Mr. J. S. Phillips, viz.:

Unio planilateris, U. viridis, Cardium lima, C. costatum, C. flavum, Tellina, (3 species.) Solen diphos, Solen, (2 species.) Cytherea mallaccensis, C. excavata, C. impar, Venus, (2 species.) Crassatella striata, Chama —, Pecten pesfelis, Hinnites Poulsoni, Modiolus —, Isocardia Molktiana, Cucullæa auriculifera, Arca tortuosa, Cancellaria cancellata, Strombus fasciatus, Voluta scapha? Cassis coarctata, C. Massenæ, Pleurotoma tenedo, P. marmorata, Trochus conchyliophorus, C. indicus, Scalaria raricosta, Marginella —, Murex tenuispina, Fusus turricula, Conus imperialis, C. miles, Cypræa picta, C. rufa, C. pulchella, Terebra Africana, Nerita luteostoma? Argonauta hians.

The following species of Land Shells were presented by Dr. Goddard:

Carocolla spinifera, Helecina orbiculata, Helix jejuna? H. appressa, H. concava.

DONATIONS TO LIBRARY.

Atlantic Journal and Friend of Knowledge. By C. S. Rafinesque. 8vo. Philada. 1832.—From Dr. Morton.

Transactions of the Maryland Academy of Science and Literature. Vol. I. part 1, 8vo. Baltimore, 1837.—From the same.

Histoire des Vegetaux Fossiles, &c. Par M. Adolphe Brongniart. 4to. Paris, Nos. 5, 6 and 7.—From the same.

On the Bones of Birds discovered in the strata of Tilgate Forest. By G. Mantell, M. D. 4to.—From the Author.

Third, Fourth, and Fifth General Reports on the Geology of Tennessee. By G. Troost, M. D. 8vo.—From the Author.

Lettre sur le poulpe de l'Argonaute. Par M. de Blainville. 4to. Paris, 1837.—From the Author.

Lettre sur la Generation des Insects. Par M. V. Audouin. 8vo. Paris, 1824.—From Dr. Morton.

Description of the Missourium, or Missouri Leviathan. By Albert Koch. 12mo. 1841.—From Dr. Chaloner.

Anatomie des Coquilles Polythalmes siphonées recentes. Par M. de Blainville. 4to.—From the Author.

Historia de la Conquista de Mexico, Poblacion y Progresos de la America Septentrional: Escriviala don Antonio de Solis y Rivadeneyra. 4to. Madrid, 1776.—From Dr. Ruschenberger.

Verbal Communications.—Dr. Chaloner stated some facts contained in a letter to him from Prof. Andreas del Rio, of Mexico, in relation to an ore of Galena, containing ten per cent. of Cadmium; of which letter a translation will shortly be presented to the Society.

Dr. Morton (Professor Johnson taking the chair) exhibited the embalmed body of an Egyptian Ibis, *Ibis religiosa*, which was unwrapped by him in the Hall of the Academy, on the 10th of April, in the presence of many members and others.

This specimen was one of several sent to Dr. Morton by George R. Gliddon, Esq., United States Consul at Cairo. It was obtained at Saccara, and is probably two thousand five hundred years old. The bird was enveloped in nearly one hundred and fifty folds of the usual linen mummy-cloth, and was found to be in perfect preservation; the head being extended downwards between the legs, and the latter drawn up, with the toes pointing outward: the feathers were generally uninjured, retaining much of their original colour; and it may be confidently asserted, that this is one of the most perfect examples of the art of bird-embalming which has ever been submitted to the inspection of naturalists.

The Ibis, (*Ibis religiosa*,) as a sacred bird, was fed and worshipped in the Egyptian temples; yet it is difficult to imagine in what way they were obtained in such vast numbers as are now found embalmed in the pyramids of Saccara. For example, Pococke, who travelled in Egypt upwards of a century since, expressed a fear that the embalmed Ibis would soon become extinct, in consequence of the daily and wanton destruction of the jars in which they are embalmed; and yet travellers of our own times assure us, after all this protracted devastation, that thousands of these relics remain undisturbed in the pyramids.

The motive for worshipping the Ibis has been variously explained; but the true cause was, no doubt, the appearance of this bird (which is a native of Abyssinia) during the inundation of the Nile, and its departure to the south on the subsidence of the water; for the Egyptians rendered homage to every thing which was connected with a phenomenon on which depended all their hopes of health, plenty, and happiness.

Dr. Morton adverted again to the fact, mentioned at a former meeting, that on first opening one of these Ibis-jars, the wrappings, which were beautifully adjusted, were almost, if not entirely colourless; but that in a short time they assumed the dark brown colour which the bitumen usually imparts to the mummy-cloth.

Prof. Johnson suggested that the exterior wrappings might not have been originally saturated with bitumen, but that they had been applied while clean to the mummy wrapped in the interior saturated folds; and that by slow, insensible transmission, the clean folds had, with the volatilized bituminous matter, become in a manner photogenic, and capable of being turned yellow by the influence of *light* as soon as the jars were opened. He conceived this explanation of the phenomenon by the known agency of *light* on resinous and bituminous substances, more satisfactory than that which had been previously offered, and which ascribed it to the mere presence of *air* admitted on opening the jar. He suggested that the latter explanation would have had more plausibility if the jar had really been hermetically sealed, and *air tight;* which, from its texture, being that of coarse unglazed earthenware, and particularly from the covering of its mouth being a still more coarse unburnt mortar, could not be presumed to be the fact.

Dr. Goddard admitted the action of *light*, in explaining the phenomenon in question; but as he supposed the cloth to have been originally of a yellow or brownish colour, such as it assumes on being removed from the jar, he considered the presence of bitumen not necessary to the change. He cited, in illustration, the Cartoons of Raphael, which, having faded in a moderately lighted room, were subsequently restored to their original colours by exposure to the sun's rays.

Some further observations ensued on the action of light, and its effects in bleaching resins.

STATED MEETING, MAY 11, 1841.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

A gigantic Spondylus, from the Indian Ocean.—From Wm. A. Foster, Esq.

Fringilla —, from South America.—From Mrs. George Cadwallader.

DONATIONS TO LIBRARY.

First Report of the Geological Survey of the Province of New Brunswick. By Abram Gesner, M. D. 8vo. 1839.—From Mr. Ashmead.

New Dispensatory. By Nicholas Culpepper. 12mo. London, 1653.—From Dr. Morton.

History of the Expedition under the command of Captains Lewis and Clarke to the sources of the Missouri, and thence to the Pacific Ocean. By Paul Allen, Esq. 2 vols., 8vo. Dublin, 1817.—From Dr. Elwyn.

The same work, 4to., London, 1814.—From several Members of the Academy.

Three Years travel through the interior parts of North America, for more than 5000 miles. By Capt. Jonathan Carver, 8vo. Philada. 1784.—From Dr. Morton.

A Guide to the arrangement of British Insects; being a Catalogue of the named species hitherto discovered in Great Britain. 2d edit. By John Curtis, Esq., F.L.S. 12mo. London, 1837.—From the Author.

Character and description of a new genus of the Family Melolonthidæ. By John Curtis, Esq., F.L.S. 4to. London, 1835.—From the Author.

Description of the Insects brought home by Commander James Clarke Ross, R. N. By John Curtis, Esq., F. L. S. 4to. From the Author.

WRITTEN COMMUNICATIONS.—A communication was read from Dr. A. Clapp, of New Albany, Indiana, in reference to the Geological equivalents of that vicinity, as compared by him with those described in the Silurian System of Murchison.

"The following fossils, which characterize the Wenlock Limestone of Murchison, I have found in the Limestone of the Falls of the Ohio: Favosites spongites, Retepora prisca. Acervularia Baltica, Astrea ananas? Cyathophyllum turbinatum, Syringipora reticulata, Calymene bufo.

"I have also observed, at the same place, the following group of Wenlock fossils, which, however, are not characteristic of the Limestone of the Falls: Catenipora escharoides, Syringipora bifurcata, Stomatapora concentrica, Favosites Gothlandica, Turbinalapsis bina, Strophomena euglypha? Atrypa prisca. To which I may add the following fossils of Goldfuss, which are not found in the Wenlock Limestone, and some of them not even in Wales: Cyathophyllum ceratites, C. vermiculare, and C. helianthoides, Stomatopora polymorpha, Favosites polymorpha, and F. basaltica, Gorgonia infundibuliformis? the last being more common in the latter formations. (Ludlow.) Besides the preceding species, I have many Polyparia, and some shells of the Falls Limestone yet undetermined. In the Limestone and Marls of Madison and Hanover, in Indiana, I have identified two other species belonging to the Wenlock shale, viz.: Terebratula spherica? and Orthocera eccentrica.

The middle and lower strata of the Blue Limestone and Marls at Cincinnati, and the lowest at Madison and Hanover, appear to be equivalents of the Caradoc Group of Murchison, and contain the following fossils: Orthis callactis, Calymene punctata, C. Blumenbachii, Triarthus Beckii, Isotelus —, Pentacrinites prisca, (Goldf.) This formation has very few Polyparia, but many shells, which are different from any described by Goldfuss or Murchison.

"The black bituminous slate that overlies the limestone at the

foot of the Falls, and is found in many parts of the western country, is probably the equivalent of the Marcellus Shale of New York. This is an excellent landmark, as there is no other formation in the west that can be easily mistaken for it. The situation of this slate at the Falls has been misunderstood in some instances, and described as underlying, or beneath the limestone.

"The dividing line between the upper and lower Silurian groups, (Wenlock Shale and Caradoc rocks,) appears to have no distinct lithological demarcation in our western formations; yet this line will probably be found to occur in the upper series of the Cincinnati and Madison Blue Limestones and Marls."

Mr. T. A. Conrad submitted a description of three new species of Unio, from the rivers of the United States, viz.:

1. Unio perplicatus.—Obtusely subovate, very ventricose; rather thick, with about 12 oblique, profound plicæ, those behind the umbo recurved; ligament margin greatly elevated; posterior superior margin slightly concave, oblique, extremity truncated; epidermis blackish-brown, apex erobed; within tinged with purple; cardinal teeth direct, prominent, sulcated. (Length 2.4; height 1.3; diameter 1.9.)

This species is most nearly related to U. costatus, (Raf.) but differs in being far more ventricose, and has very prominent umbones, which are just the reverse in the costatus. The diameter through the umbonial slope is profound.

2. U. nodiferus.—Obtusely subovate, ventricose, moderately thick; surface with a few nodules about the middle of the valves, and smaller ones near the ligament margin; a slight, not very wide, furrow extends from beak to base; posterior margin approaching to a regular curve; beaks eroded; within white; cardinal teeth robust, prominent, direct, and profoundly sulcated in old shells; epidermis chestnut-brown. (Length 2.1, 1.8; height 1.1, 1; diameter 1.6, 1.4.)

Approaches U. prasinus, but differs in being proportionally longer, more convex, in having a brown epidermis, narrower anterior side, and oblique posterior margin.

3. U. paralellus.—Oblong, sub-rhomboidal, convex, moderately thick, slightly contracted from beak to base; hinge and basal margins parallel, nearly rectilinear; posterior margin oblique; extremity obtusely rounded; epidermis dark olive-brown; within white; cardinal teeth oblique, double in each valve; cardinal area under the beaks almost obliterated. (Length 3.7; height 1.1; diameter 1.8.)

Some conchologists may consider this to be a variety of U. purpureus, (Say,) and as but one specimen has been received, I cannot judge of the amount of difference which will obtain between the two species. I think the purpureus has never yet been found nearly so far south-west as Louisiana; certainly, after a long examination of the waters of Alabama, I was unable to find it. The paralellus differs from purpureus in having a white interior, in the obliteration of the cardinal area, in the regular convexity of the valves, and in having a much larger accessory muscular impression.

These three species are in the collection of the Academy: they were sent from Jackson, in Louisiana.

STATED MEETING, MAY 18, 1841.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Helix Blandingiana; St. Johns, Liberia. Arca senilis; same locality.—From Dr. Wm. Blanding.

Fossil Aspergillum, from the Newer Pliocene of Palermo, in Sicily: and Lutraria petrosa, (Conrad) from Vance's Ferry, S. Carolina.—From Dr. Morton.

DONATIONS TO LIBRARY.

Account of Voyages for making Discoveries in the Southern Hemisphere. By John Hawkesworth, L.L.D. 2 vols. 8vo. Dublin, 1775.—From Dr. Morton.

Pharmacopœia Officinalis Brittanica. By Richard Stocker. 8vo. London, 1810.

An Experimental Examination of the Pharmacopœia Londonensis. By Richard Phillips. 8vo. London, 1811.—From Dr. Morton.

An Inquiry into the accordance of war with the principles of Christianity. By Jonathan Dymond, with notes by Thomas Smith Grimké. 12mo. Philada. 1832.—From Paul Beck, Jr., Esq., per Dr. Goddard.

Portfolio Chiensis; or a Collection of Chinese State Papers, with a translation, and notes, by J. Lewis Shuck. 8vo. Macao, 1840.—From the same.

Life Tables, founded upon the discovery of a numerical law, regulating the existence of every human being. By T. R. Edmonds, B. A. 8vo. London, 1832.—From Dr. Morton.

Medical and Physical Memoirs, with an inquiry into the nature of the Pestilential Epidemics of the United States. By Charles Caldwell, M. D. 8vo. Philada. 1811.—From Dr. Zantzinger.

WRITTEN COMMUNICATIONS.—Professor Johnson submitted an examination and analysis of Coal found in the Province of Arauco, coast of Chili, 30 miles south of Bio Bio river.

The sample of coal, of which the following is a description, was collected by Mr. J. F. Watson, of this city.

In exterior appearance it is nearly related to many of the richest bituminous coals of this country and of Europe.

It is moderately compact; thin shining laminæ are seen parallel to the bed or plane of super position, but the greater part of the mass is of a dull or pitchy black colour.

Its horizontal or depository surfaces are rather uneven; vertical sections in some parts smooth, in others, irregular; very little indication of reediness is perceived. Portions of "clod" or vegetable charcoal are occasionally met with.

Its specific gravity is 1.324.

At a temperature of 300° Fah. it loses of water	2.2	per ct.
Coked at a bright red heat it gives off of volatile matter, burning with a brilliant flame,	27.8	"
It contains of carbon, not volatile by simple heat,	67.62	"
And when fully incinerated, leaves of reddish grey ashes	2.38	"
	100.	

On being quickly exposed to a full red heat it becomes completely fused, and the original form and structure are entirely lost. The coke accordingly belongs to that class which has received the designation of "highly bituminous coal coke."

	Carbon.	Vol. matter.	Ashes.
In composition this coal bears a strong analogy to the Staffordshire Wednesbury coal, which gives (Berthier)	67.5	30.	2.5
Clyde, near Glasgow, (also examined by Berthier)	64.4	31.0	4.6
Karthaus, (analysed by W. R. Johnson)	68.1	28.8	5.1
Vartey, 'three-quarter coal,' (Mushet)	67.9	29.6	2.5
Blandare Meadow coal, and at Pont-y-Pool. (Mushet)	66.84	29.16	3.0
Risea, Big Vein, South Wales (Mushet)	68.016	29.15	2.834
Phelps vein, at Mynydyswdyn do.	68.00	30.00	2.00

	Carbon.	Vol. matter.	Ashes.
Dee Bank, near Holywell, (Mushet)	66.348	31.60	2.054
Porkgate, main coal, Yorkshire, do.	67.145	30.730	2.125
Northumberland, Tyne Works, (Berthier)	67.500	30.00	2.50
Kidsgrove, North Staffordshire, seven feet coal, (Mushet)	67.905	30.47	1.625
Green hole shaft, James river, Va. (Geolog. Survey)	67.83	30.17	2.00

MEETING OF BUSINESS, MAY 25, 1841.

VICE PRESIDENT WETHERILL in the Chair.

After various preparatory business, the Society proceeded to ballot for Members and Correspondents, when the following gentlemen were elected Resident Members:

Nathan Allen, M. D.
Charles Poulson, Jr. Esq.
Peter A. Browne, Esq.

The following Corresponding Members were also duly elected:

William C. Redfield, Esq., of New York.
Oliver P. Hubbard, M. D., of Dartmouth College, New Hampshire.
John Locke, M. D., of Cincinnati, Ohio.

J. W. Bailey, Esq., of the Military Academy of West Point.
Kev. J. P. Durbin, Carlisle, Pennsylvania.
Major James D. Graham, U. S. Topographical Engineers.
Benjamin Silliman, Jr., Esq., New Haven.
James Saul, Esq., New Orleans.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. I. JUNE, 1841. No. 3.

STATED MEETING, JUNE 1, 1841.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

A collection of shells embracing the following species, was presented by Dr. J. C. Jay, of New York, through Mr. Phillips, viz:

Mactra similis? Cytherea chione, C. maculata, C. tigerina, Venus pullastra, V. rugosa, V. decussata, and two other species, Cyprina islandica, Artemis elegans, Capsa levigata, Cardium muricatum, Anadonta anatina, Unio limosus, Solen —, Mytilus —, Haliotis, (2 species,) Bulla zeylanica, Patella cochlear, P. monopis, P. oculus, P. granatina, and 7 other species, Fissurella —, Helix —. Bulimus hæmastomus, B. taunaysii, Ampullacera avellana, Ampullaria —, Neritina granulosa, Nerita —, Turbo coronatus, T. radiatus, T. argyrostomus, T. concavus, Trochus Cookii, and two other species, Pyrula Dussumieri, Triton spengleri, T. succinctum, and one other species,

Ranella argus, R. bufonia, and one other species; Murex brandaris, Turbinella capitellum, Strombus lentiginosus, S. Tankervillii, S. pugilis, Cerithium ebeninum, Purpura consul, P. haustrum, P. hæmastoma, P. hippocastanum, P. succincta, P. ligata, Concholepas peruvianus, Buccinum moniliferum, Voluta elongata, Conus arenatus.

Struthiolaria nodulosa.—From Mr. B. H. Tanner.

Helix dentifera, H. subglobosa, H. intertexta, H. limatula, H. minuscula, H. multidentata, H. egena. H. electrina, and a nondescript Planorbis.—From Dr. Amos Binney, of Boston.

Elaps fulvius, S. Carolina.—From Mr. James Read.

Janthina communis, with the animal; Sigaretus perspectivus, also with the animal. Three species of Linnean cancer; and a collection of fishes from the Gulf of Mexico.—From Capt. H. F. Baker.

Achatina zebra. Venus tripla, and a Pholas, from Africa.—From Dr. Wm. Blanding.

Scorpio, Rana, two gigantic beetles, and other insects and reptiles, from Western Africa.—Presented by Dr. Johnson of Liberia.

Three antique Mexican Idols, formed of baked clay. Presented by Wm. Augustus Twigg, Esq. Also from the same gentleman, a Syngnathus from the Gulf of Mexico.

Dr. Morton deposited casts, in plaster, of the six sculls of ancient Peruvians obtained and brought to Europe by Mr. Pentland.

Mr. Robert Pearsall presented seventeen additional chairs for the use of the members.

DONATIONS TO THE LIBRARY.

Monograph of the Limniades, or Fresh water Univalve Shells

of the United States. By S. S. Haldeman. 8vo. Philad. 1841. No. 2. From the Author.

Stirpium rariorum minusque cognitarum in Sicilia sponte provenientium descriptiones, nonnullis iconibus auctæ. Auctore Antonio Bivona Bomardi. 8vo. Panormi, 1813. From Mr. Haldeman.

Report on the Geological Survey of New York, for 1840. From Dr. L. C. Beck.

The Floral Magazine and Botanical Repository, 4to. Philad. Nos. 1, 2, 3, and 5. From Mr. W. P. Gibbons.

Catalogue of Shells, arranged according to the Lamarckian system, together with descriptions of new or rare species, contained in the collection of J. C. Jay, M. D. 4to. New York, 1839. 2 copies. From the Author.

Illustrations of Ornithology. By Sir William Jardine, and Prideaux John Selby. 3 vols. 4to. Edinburgh. Presented by Messrs. Poulson, Hembell, Elwyn, Wetherill, Vaux, Ashmead and Morton.

WRITTEN COMMUNICATIONS.—Mr. J. S. Phillips read descriptions of two new American species of the genus Helix: viz.

Helix bidentifera.—Testa convexa, depressa, corneo-lutea; regulariter et tenuiter striata, striis longitudinalibus, obliquis; umbilicata, apertura compressa; labro subreflexo, duobus dentibus albis, rotundis, parvulis, in margine inferiore, instructo.

Shell much depressed, rather thin, epidermis yellowish horn colour, shining; whorls six, rounded, with very numerous, raised, oblique striæ; suture strongly impressed; aperture compressed, contracted by a groove behind the outer lip; outer lip moderately reflected; within the edge of the aperature on the lower portion, two fine rounded white teeth, one near the umbilicus, the other nearly equidistant from the extremities of the outer lip; umbilicus round, of moderate diameter, not encroached on by the outer lip, well defined and deep; base rounded, more convex than the

upper surface, transverse diameter 2-5 of an inch; height 1-6 of an inch. Brought from North Carolina by Mr. T. Nuttal.

This shell differs from all the known American Helices, in the character of the two minute, well defined teeth on the outer lip, while it is without a trace of a tooth on the pillar lip.

Helix lasmodon. Testa subelevata, centiculata, crassiuscula, umbilicata, substriata; apertura compressa; labro acuto, uno vel duobus dentibus lamellosis; base rotundato; colore albo corneo.

Shell moderately elevated, lenticular; rather thick; epidermis pale whitish horn colour, smooth, shining; whorls eight, very faintly and obliquely striated; suture indistinct; aperture compressed within a broad calcerous deposit, and one or two lameller teeth following the direction of the whorls; lip acute; umbilicus moderately large, rounded and deep; base regularly rounded into the umbilicus. Transverse diameter 7-20; height 3-20 of an inch. Brought from Alabama by Dr. W. Blanding.

This shell resembles no other American species but H. suppressa, Say, and H. gularis, Say, and from these it differs decidedly in the well defined and deep umbilicus; it differs from H. Epistilium, in the smaller size, greater number of whorls, large umbilicus and lenticular form.

Mr. T. A. Conrad read a paper descriptive of twenty-six new species of Fossil shells, discovered by him in the Medial Tertiary deposits of Calvert Cliffs, Maryland, viz:

VENUS.

Venus latilirata.—Trigonal, convex depressed, ribs concentric, about 5 or 6 in number, flattened, reflected, irregular, one of them gererally very wide; ribs irregularly sulcated on the posterior slope; inner margin finely crenulated. Smaller than V. alveata, and with broader, less prominent ribs, which do not diminish in size on the posterior margin.

CYTHEREA.

Cytherea subnasuta.—Trigonal, thin, ventricose; anterior side nar-

rowed, slightly produced and subangulated at the extremity; surface with rather prominent concentric wrinkles; posterior margin obliquely arched; beaks distant from anterior extremity, and not nearly central; length 1 1-8 inch. Allied to C. Sayana, but is proportionally longer, less ventricose, narrowed, and more produced anteriorly.

LUCINA.

Lucina Foremani.—Orbicular, ventricose, moderately thick; surface with irregular shallow grooves, and rather distant prominent striæ, with intermediate fine, concentric lines; posterior margin subtruncated obliquely outwards; beaks prominent, not central; hinge edentulous. Length 1 1-2 inch. Named in honour of a zealous scientific young gentleman of Baltimore, Dr. E. Foreman.

L. subplanata.—Lentiform, convex, depressed, with prominent acute equal concentric striæ; beaks central; cardinal teeth prominent. 3-4 inch. Very rare.

CARDIUM.

Cardium leptopleura.—Subtrigonal, ventricose; ribs about 31, prominent, distant, angular, carinated; umbo prominent, oblique; lateral teeth very prominent; inner margin widely and deeply crenate. Length 2 1-4 inches. Height 2 inches.

ASTARTE.

Astarte varians.—Trigonal, compressed; posterior side cuneiform, extremity acutely rounded; umbo flattened, sulcated. Length 1 1-4 inch.

Var. A. Proportionally shorter, more convex, with numerous concentric furrows.

Allied to A. perplana, but has a much deeper lunule, more oblique teeth, narrowed, and more produced posteriorly.

A. exaltata.—Obovate, acute, convex; umbo sulcated; apex very prominent; lunule elongated and profound. Height and length equal, 5-8 inch.

LIMA.

Lima papyria.—Obliquely obovate, thin and fragile, inflated; with prominent radiating lines, distant towards the anterior margin; anterior margin angulated at base of the ear, truncated or slightly concave below, and abruptly rounded where it joins the basal margin; ears small. Height 7-8 inch; length 3-4 inch.

ARCA.

Arca subrostrata.—Ovate; profoundly ventricose; ribs about 30, little prominent, flat, longitudinally sulcated; posterior side produced, cuneiform; rounded at the extremity; hinge linear in the middle, teeth obsolete, except towards the extremities; within slightly sulcated; crenulations of the margin sulcated in the middle. Length 2 inches.

PLEUROTOMA.

Pleurotoma Marylandica.—Fusiform, with spiral wrinkled lines; upper half of whorls of the spine concave, the lower convex, and with oblique ribs. Length 2 1-2 inches.

P. bellacrenata.—Fusiform; whorls much contracted below the middle, with obsolete spiral lines, and crenate above the suture and on the shoulder of body whirl; body whirl with five or six strong spiral striæ, and an intermediate fine line; back finely striated. Length 1 1-8 inch.

TROCHUS.

Trochus peralveatus.—Volutions 5 or 6, with each a deep groove near the base; space below the suture profoundly and widely channelled; upper margin of whirls acutely carinated; base with 5 profound grooves. Length 1 5-8 inch.

SCALARIA.

Scalaria pachypleura.—Turretted; short in proportion to its width; volutions 6 or 7, rapidly diminishing in size; ribs very thick, prominent, reflected, terminating above in prominent angles. Length 5-8 inch.

Solarium.

Solarium trilineatum.—Depressed, conical; whirls with obsolete spiral lines, and fine transverse striæ, an impressed line below the suture; whirls carinated at base; suture deeply impressed; periphery carinated, and margined above and beneath by a carinated line; umbilicus profound, crenate on the margin, and with a submarginal impressed line, striæ radiating from the umbilicus, becoming obsolete towards the periphery. Width 1-2 inch.

Infundibulum.

Infundibulum perarmatum.—Trochiform; whirls convex, armed with numerous erect foliated spines. Width 1 3-8 inch.

Allied to I. trochiformis, Lam., but is less variable in form, and has larger spines.

Fissurella.

Fissurella Marylandica.—Elevated, with numerous striæ, alternated in size and minutely granulated by fine crowded concentric lines crossing them; foramen large, regularly oval. Length 1 inch.

Closely allied to F. Griscomi, but is readily distinguished by a much larger foramen, finer concentric lines, in not being laterally compressed, &c.

Dispotæa.

Dispotæa ramosa.—Suborbicular, with broad prominent ribs, and radiating, ramose, wrinkled and highly ornamented striæ; margin profoundly indented by the projecting ribs. Width 1 3-8 inch.

This species has been confounded with D. costata, but the ramose lines give it a very distinctive character. Occurs on James River, Virginia.

Cancellaria.

Cancellaria biplicifera.—Turretted, with thick longitudinal ribs, and spiral rather distant impressed lines; on the body whirl an occasional intermediate fine line; space below the suture widely and deeply channelled; shoulder coronated; umbilicus small; columella concave, and with two plaits. Length 1 1-2 inch.

C. engonata.—Short fusiform, with strong spiral prominent lines; and numerous longitudinal costæ, not so distinct as the transverse lines; spire scalariform, volutions 4; columella with 3 plaits, the middle one very oblique; submargin of labium with prominent transverse lines. Length 3-8 inch.

BONELLIA.

Bonellia lineata.—Subulate, polished, with obsolete spiral lines, distinctly visible only on the body whirl; a spiral line margins the suture at base of each volution, causing the suture to appear profound; this line is continued on the middle of the body whirl.

Very distinct from B. terebella:* the deeply impressed suture and smaller umbilicus distinguish it at a glance.

TURRITELLA.

Turritella indenta.—Subulate, whirls about 15, contracted or indented above the middle, and with obsolete spiral striæ; suture profound, the lower margin obtusely carinated by the indentation; the upper margin also subcarinated; basal margin acutely angulated; base flat or slightly concave. Length 2 inches.

T. exaltata.—Subulate, profoundly elongated; whirls convex, with spiral striæ; base of each with a slight grove, and carinated line which margins the suture; waived longitudinal rugæ robust.

Obtained only in fragments, but the spire tapers so gradually, that the shell must have attained between 3 and 4 inches in length by 1-2 inch in breadth.

T. perlaqueata.—Subulate, whirls convex at base, longitudinally ribbed or fluted, with very fine spiral striæ, most profound towards the base of the larger volution. Length rather more than 1-2 an inch.

MARGINELLA.

Marginella perexigua.—Very small, obtusely ovate; labrum profoundly thickened, the margin minutely crenulated; labium with 4 plaits; spire depressed; volutions concealed.

A small species, very much like a Cypræa in form. Length 1-8 inch.

* Bulimus tereballatus, Lam.

Polyparia.

ASTREA.

Astrea Marylandica.—Incrusting, very thin; cells unequal, subpentagonal, margin acute and prominent; radiating lamellæ distant, about 12 in number.

Frequently incrusting the Pecten Madisonius on James river, Virginia.

A. bella.—Incrusting, thick; cells unequal; pentagonal, rays numerous, minutely and beautifully denticulated; frequently alternated in length. Near Newbern, N. C.

Lower Tertiary Fossils.

CARDIUM.

Cardium Nicolletti.—Cordate, ventricose, polished, with crowded minute, impressed radiating lines; beaks central; summits very prominent; posterior margin nearly direct, slightly emarginate; posterior slope with larger striæ than the disk, and muricated with radiating rows of approximate, rather obtuse, slender and prominent tubercles. Length 2 1-2 inches. Height the same.

For this splendid Cardium, I am indebted to my distinguished friend J. N. Nicollet. It was found in green clay at 50 feet in height on the right bank of the Washita river, Monroe county, Louisiana.

FUSUS.

Fusus pachyleurus.—Fusiform, thick, with spiral striæ not very distinct; whirls of the spine concave above, convex, and with obtuse ribs below, except upon the lower whirl which is entire; body whirl also destitute of ribs, abruptly rounded or subangulated at base, ventricose; beak long, thick, straight; labium widely reflected; channel contracted. Length 2 1-2 inches.

Presented by Mr. Nicollet: it is from the Lower Tertiary of Alabama.

Professor Johnson made some remarks on the magnetic phenomena attending the congealing of cast-iron.

To observe the time and degree of rapidity of resuming the magnetic power by a mass of melted iron, a bed was formed about 3 or 3 1-2 feet in length, 5 inches deep, and of the usual form for casting pig iron; rounding at the bottom and 4 or 5 inches broad at the top. The length of this bed was nearly in the direction of the magnetic meridian.

A compass needle 3 inches long was placed near the northern end of the bed, but a little to the east, and about 5 inches short of the extremity; another needle about 7-8 of an inch long was placed symetrically to the west side of the bed, and about the same distance from its southern extremity. Thus a line joining the centres of the needles would pass over the centre of the pig bed, and be about nine or ten inches shorter than the latter.

The needles having come to rest, and their positions noted, the bed was filled with melted iron. A slight derangement of the needles occurred while the ladle was near, during the pouring of the metal; but they soon recovered their previous position, as soon as the ladle had been removed.

They were then carefully watched in order to detect the first movements which should occur after the solidifying of the pig.

At the end of 20 minutes the metal being cooled down to a heat which made it barely red in daylight, the first movements were detected, slow and scarcely perceptible, but increasing in rapidity, so that at the end of two minutes the divergency amounted to 8°; in 4 minutes it had extended to 20°, the pig being nearly black; and in 20 minutes more, the divergency had attained its maximum of 22° from the original position. As the influence of the earth's magnetism converted the northerly part of the pig into a north pole, it of course repelled the north pole of the needle placed near it, and attracted the south. The reverse taking place at the opposite end of the pig, the north end was there attracted and the south repelled. To ascertain whether any degree of permanent magnetic force would be retained by the pig, it was thrown from its bed and caused to make one-fourth of a revolution horizontally, so as to bring its longest diameter into the magnetic east and west. In this position it exerted no power on the needle brought near either

extremity; but on reversing its position in the bed, the end which had before been a north pole was made a south one; and *vice versa*.

Dr. Morton made some remarks on the Ancient Peruvians; that extraordinaay people who preceded the Inca race, and whose monuments show a remarkable advance in civilization at a very early epoch.

"In my work on American skulls (Crania Americana,) I have expressed the opinion that the heads of the ancient Peruvians were *naturally* very much elongated; and that they differed in this respect from those of the Inca Peruvians, and other surrounding nations; and having given this opinion at a meeting of the Academy prior to the publication of my work, I take this occasion to renounce it.

In the American Journal of Science, for March, 1840, I have already, in a brief note, adverted to this change of opinion; and I now repeat my matured conclusions in connection with positive facts, derived from the work of a distinguished traveller and naturalist, M. Alcide D'Orbigny.

This gentleman not only visited the elevated table-land of the Andes, which was once inhabited by the ancient Peruvians, but he remained a long time in that interesting region, and has collected numerous facts in relation to the people themselves.

1. The descendants of the ancient Peruvians yet inhabit the land of their ancestors, and bear the name of Aymaras, which was probably their primitive designation.

2. The modern Aymaras resemble the surrounding Quichua or Peruvian nations, in colour, figure, features, expression, shape of the head, (which they have ceased to mould into artificial forms,) and in fact in every thing that relates to physical conformation and social customs; their languages differ, but even here there is a resemblance which proves a common origin.

3. On examining the tombs of the ancient Aymaras, in the environs of the lake Titicaca, M. D'Orbigny remarked that those which contained the compressed and elongated skulls, contained also a

greater number that were not flattened; whence he infers that the deformity was not natural, or characteristic of the nation, but the result of mechanical compression.

4. It was also remarked that those skulls which were flattened were uniformly those of men, while the heads of the women always retained the natural shape,—the squared or spheroidal form which is characteristic of the American race, and especially of the Peruvians.

5. The most elongated heads were found in the largest and finest tombs; showing that the deformity was a mark of distinction among these people.

6. The researches of M. D'Orbigny confirm the statements made at distant intervals of time by Pedro de Cieza, Garcilaso de la Vega, and Mr. Pentland, and prove conclusively, what I have never doubted, that these people were the architects of their own tombs and temples; and not, as some suppose, intruders who had usurped the civilization, and appropriated the ingenuity of an antecedent and more intellectual race.

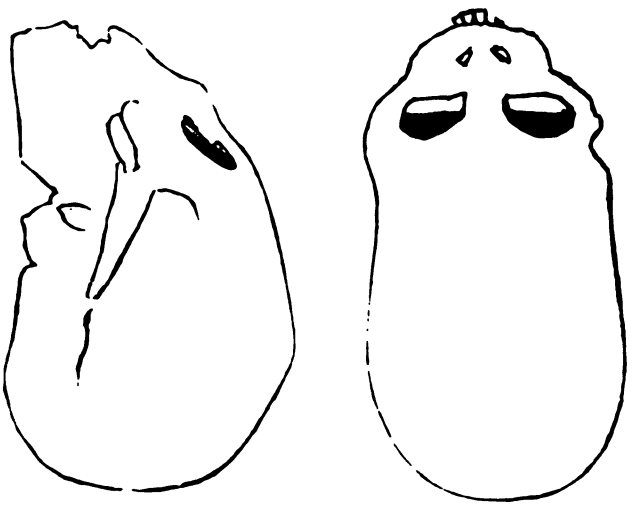
M. D'Orbigny found temples from 100 to 200 metres in length, facing the east, and ornamented with rows of angular columns; enormous gateways made of a single mass of rock, and covered with bas reliefs; colossal statues of basalt; and large square tombs, wholly above ground, and in such numbers that they are compared to towns and villages.

My published observations go to show that the internal capacity of the cranium, as indicative of the size of the brain, is nearly the same in the ancient and modern Peruvians, viz. about seventy-five cubic inches, a smallness of size which is within a parallel among existing nations, excepting only the Hindoos.

M. D'Orbigny even supposes the ancient Peruvians to have been the lineal progenitors of the Inca family; a question which is not yet decided. Supposing this to be the fact, we may inquire how it happens that the Incas should have so entirely abandoned the practice of distorting the cranium, especially as this, among the Aymaras, was an aristocratic privilege?

I was at first at a loss to imagine how this singular elongation of the head was effected, for when pressure is applied to a spheroidal

head, as in the instance of the Chenouks and other tribes of the Columbia river, the skull expands *laterally* in proportion as it is depressed above; whereas, in these people, the head is narrow from the face to the occiput. It seems probable that this conformation was produced by placing splints or compresses on each side of the head from the cheek bones to the parietal protuberances, and another on the forehead, and confining them by rotary bandages. In this way the face, in the process of growth, would be protruded in front, and the head elongated backwards; while the skull, in all other directions, could expand comparatively little. These remarks will be more readily understood by reference to the annexed outlines, which are taken from a cast of one of the skulls obtained by Mr. Pentland.



Dr. Goddard suggested that the deformity observable in this series of crania, might have been produced by the action of rotary bandages alone, without the use of splints or compresses. Dr. Morton admitted the possibility of this result in some of the heads, but thought that in others there was satisfactory evidence of the use of the splint or compress, especially on the os frontis.

Dr. Morton exhibited, in further illustration, six casts of heads and three skulls of these people, all of which present the elongated form in question. For further details Dr. Morton referred to his Crania Americana, and to the beautiful and instructive work of M. D'Orbigny, entitled "L'Homme Americain, considéré sous ses rapports physiologiques et moraux." These works were at the same time placed on the table for inspection and comparison.

STATED MEETING, JUNE 8, 1841.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Two mounted specimens of Tetrao coturnix, from the vicinity of Naples.—From Dr. C. Arrott, through Dr. Watson.

Chelonura serpentina, or Snapper, from Fox river, Wisconsin; and Emys insculpta from Woodbury, New Jersey; both mounted specimens. Presented by Dr. Blanding.

DONATIONS TO LIBRARY.

Notes on the United States of North America, during a Phrenological visit in 1839–40. By George Combe. 2 vols. 8vo. Philadelphia, 1841.—From Dr. Morton.

Essayo Chronologico, para la Historia General de la Florida; desde el año de 1512, que descubie la Florida, Juan Ponce

de Leon, hasta el de 1722. Escrito por Don Gabriel de Cardenas. 4to. Madrid, 1723.—From Dr. Ruschenberger.

VERBAL COMMUNCATIONS.—Mr. Clay remarked that on examining a series of magnesian minerals recently received by him from Europe, he finds that four species which are described as new, and perhaps a fifth, exist in the United States, but do not appear to have been hitherto recognised by our mineralogists. These species are Agalmatolite, Kerolite, Picrosmine, Picrolite and Metaxite. (Breithaupt.) Mr. Clay thinks that all these minerals (of which, however, he regards the two last as doubtful species,) except Picrosmine, are found in Chester and Delaware counties, Pennsylvania. Mr. Clay proposes to investigate this subject more in detail.

Dr. Blanding mentioned some facts in relation to the surprising fecundity of the striped Bass, Labrax lineatus. He obtained one of these fish which weighed 65¼ lbs. and the roes 4lbs. 6 oz. 2 dr. He found one hundred of the eggs to weigh a grain and a half; and although one end of the containing membrane had been ruptured, whereby some hundreds were lost, the whole number of eggs must have been at least 2,248,000.

NEW BUSINESS.

The Committee appointed at a former meeting to wait on Mr. Rembrandt Peale in reference to a portrait of the late Mr. Thomas Say, ordered by the Society, reported that the same was now completed, and would shortly be suspended in the Hall of the Academy.

STATED MEETING, JUNE 15, 1841.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO THE LIBRARY.

Encyclopædia Brittanica. 21 vols. 4to.—from Dr. Goddard.

Essai sur les Réfractions Astronomiques dans la zone torride. Par A. de Humboldt. 4to. Paris, 1808.—From Dr. Hallowell.

Review of the references to the Hortus Malabaricus of Henry Van Rheede van Draakenstein. By L. W. Dillwyn. 8vo. Swansea, 1839.—From the author.

DONATIONS TO THE MUSEUM.

Rhætezite and large dodecaedral garnets, from Lincoln co., North Carolina.—From Dr. Blanding.

Mineral charcoal, from the Nesquehoning mine, in contact with Anthracite; and magnetic iron ore with adhering gangue, obtained three miles from Rockaway, Morris co., New Jersey.—From Prof. Johnson.

WRITTEN COMMUNICATIONS.—Professor Johnson submitted the result of his experiments "On the relation between the coal of South Wales and that of some Pennsylvania anthracites."

Having received, some time since, a number of samples of the coals used by Mr. Crane at the Yniscedwyn iron works in South Wales, some pains have been taken to trace the relation of that mineral to some of the many varieties of anthracite found in Pennsylvania. It was the first step in this inquiry to mark the relation

by external characters. These in the Welsh coal are, 1st. A structure often lamellated, and tending to separate on the surfaces of deposition, owing to the quantity of carbonaceous clod which occupies the dull seams between the bright plies of coal.

2d. The abundance and width of the reeds constituting the charcoal deposits.

3d. The shining and polished surfaces occasionally presenting themselves to view at some of the natural partings.

4th. The purplish tints of metallic oxide often observable on the surfaces of fracture.

5th. The general colour is deep black, and either dull or shining according as the ply which is examined belongs to the coal proper, or to the carbonaceous clod partings of the seams.

The next circumstance worthy of attention in tracing the relation of coals, is their specific gravity; and this in the Welsh anthracite is from 1.336 to 1.372, not greater than that of many bituminous coals.

The next circumstance worthy of attention is the quantity of volatile matter, and this by the mean of two trials is 9.18 per cent.; that on the anthracite containing most clod is 10.7, and that of the more compact variety is 7.66 per cent.

Mr. Mushet makes it from 6.66 to 7.80 in the coals of the same locality. Mr. Frazer analyzed a sample of the same coal, and found 7.60 of volatile matter, 86.6 of carbon, and 5.08 of ashes.

The quantity of earthy matter in the Iniscedwyn anthracite, according to the mean of 3 analyses of Mr. Mushet, is 3.578 per cent. Adopting this for the proportion in the sample which yielded 10.7 per cent. of volatile matter, we have the solid carbon = 85.722 per cent. and in the other 88.762.

Among the Pennsylvania anthracite, that which according to the observations of Prof. Johnson approximates most nearly to the Inyscedwyn coal, is the coal of Lyken's valley, situated in the northwestern fork of the southern coal field. This coal has all the exterior characters of the Welsh anthracite; containing in many samples a large portion of carbonaceous clod, with well marked

vegetable impressions; and in colour, structure, and varieties of surface, the two coals might readily be taken the one for the other. Of nine samples analyzed by Prof. Johnson, the lowest specific gravity was found to be 1.374, the highest 1.416, and the mean 1.390. The mean amount of volatile matter was found to be 8.067, the highest being 11.854 per cent.; the mean proportion of earthy matter and metallic oxides is 4.46; and that of the fixed carbon 87.472 per cent.

From these data we derive the following comparisons.

	Sp. Gr.	Vol. mat.	Carbon.	Ashes
Inyscedwyn, lighter variety,	1.336	10.7	85.722	3.578
Do. heavier,	1.372	7.66	88.762	3.578
Mean of two, - =	1.354	9.18	87.242	3.578
Lyken's valley, -	1.390	8.067	87.742	4.460

In distilling the Welsh anthracite, the first portion of gas which comes over, burns with a pale blue flame, like that of carbonic oxide, which is succeeded at a certain point of temperature by a sudden outburst of carburetted hydrogen, burning with a bright flame and some smoke, a quantity of bituminous matter being at the same time evolved; sufficient in one instance to close up the narrow beak of the retort employed in the distillation. The coke is perfectly anthracitous, and the angles of the fragments entirely sharp and well defined.

The gaseous matter of the Lyken's valley anthracite also burns with a brilliant flame, but no violent explosive developement of it was remarked.

Professor Johnson made some remarks on the recent application of Anthracite, to the smelting of the magnetic iron ores of New Jersey.

This has been effected at Stanhope, on the line of the Morris canal, 38 miles north-east of Easton, at which one furnace is now

in action ; another is nearly completed, a third is partly finished, and the foundations of a fourth are prepared.

The ore used at those furnaces is mined at Irondale, 7 miles eastward of the works, on the line of the canal, and is found to yield in practice 65 per cent. of pig metal of a lively grey color, soft, and easily wrought, though not remarkably tough. The anthracite hitherto used is that from the Lehigh, chiefly from the middle coal pit, and according to their experience hitherto, a decided preference is given to the Beaver Meadow coal. The hot blast is employed at a temperature of 600 degrees and upwards. The quantity of coal required within the furnace to make one ton of iron is 22 cwt. ; that for heating the blast, about 4 cwt. The air is delivered to the furnace under a pressure of 3 lbs. to the square inch. The amount of blast furnished by the engine is 4071 cubic feet per minute ; which as the furnace makes 8 tons per day, gives a little more than 25 tons of air urged through the bellows for every ton of iron produced. But the air heating ovens are supposed to receive about one tenth of this amount, and nearly an equal portion is believed to be wasted through apertures in the tubes leading to the engines. If this estimate be correct, the quantity of blast actually delivered to the furnace will be 20 tons per ton of pig metal produced ; a quantity corresponding with what has been found necessary both from theory and from experience in other anthracite furnaces.

STATED MEETING, JUNE 22, 1841.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO THE LIBRARY.

Address delivered at the annual meeting of the Boston Society of Natural History, May 5, 1841, by J. C. Teschemacher. From the Society.

Flora of North America, arranged according to the Natural System. By John Torrey and Asa Gray. 8vo. New York, 1841.

Third Annual report of the Botanical Society of Edinburgh. Session 1838-39. Edinburgh, 1841.—From the Society.

DONATIONS TO THE MUSEUM.

Pleurotoma Australis, Solarium lævigatum, Cyclostoma——, and Trochus obeliscus.—From Capt. Land.

Monoceros lugubris.—From Mrs. Preston.

Fissurella ——, Patella, two species, Tellina ——, Sanguinolaria —, Scutella digitata, S. dentata, from Liberia.—Presented by Dr. Blanding. The same gentleman also presented two specimens of Jerbillus canadensis, a Mus and a Sorex from Indiana.

Fossil crab, (Cancer, Lin.) in indurated sand, from the lower beds of the Cretaceous formation of New Jersey. Found at Little Egg Harbour, and presented by Mr. Edward Needles.

WRITTEN COMMUNICATIONS.—The Corresponding Secretary read a letter from Wm. C. Redfield, Esq., acknowledging the receipt of a letter announcing his election as a corresponding member. A letter of similar import was also read from Dr. J. P. Durbin of Dickinson college.

VERBAL COMMUNICATIONS.—Dr. B. H. Coates stated, that out of about 20 stalks of bearded wheat, which he had recently examined in Moyamensing, and which were selected as not having been able to develop their seeds, the greater part presenting the appearance called smut, he found all but two to have the aspect of having been stung by insects, in the first or second joint, generally the first. In all but four, the resemblance of a sting appeared to penetrate the cavity of the straw, and the inside had the appearance of having been eroded, with a perforation extending to the outside. Opposite to two of these, on the outside, and under the sheaths of the first and second joints, he found puparia, resembling those of the familiar Cecidomyia of Say. One of these was empty; and the separation of the leaf sheath from the stalk, with a black streak, pointed out a route by which the animal could have escaped. These cases last enumerated corresponded with the verbal communications of Miss. M. A. Morris.

On the outside of another basal stipule of wheat, he found two quiescent animal bodies, whitish, with dark spots, having much of the general appearance of what is considered by Mr. Say, the larva of the Cecidomyia. One of them in 24 hours became of a pale brown and shrivelled; and in two days more developed a dipterous fly, which farmers said they should have classed among the common destroyers of the wheat, and which was exactly of the size of Say's figure, measuring 3-20ths of an inch in length; but was of a paler colour, and had setaceous antennæ. Its general aspect resembled that of a tipulide fly. After a partial inspection by a gentleman who had bestowed much labour on Entomology, the impression was received that it did not belong to the genus Cecidomyia; and the specimen is kept for accurate examination.

Professor Johnson drew the attention of the Society to the atmospheric phenomena attendant on extensive conflagration; and stated on the authority of Dr. H. King of Washington city, that the burning of the prairies in Wisconsin and Mis-

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Professor Johnson drew the attention of the Society to the atmospheric phenomena attendant on extensive conflagration; and stated on the authority of Dr. H. King of Washington city, that the burning of the prairies in Wisconsin and Mis-

souri, is frequently, and almost immediately followed by rain. This observation had been confirmed to Dr. King by other observers; and in the western country it had become a popular impression that a prairie-fire was the forerunner of rain.

Dr. Coates had met with a statement in Nichol's History of Leicestershire, which bore on the same question; viz. that in the reign of one of the Stuarts, orders were sent to a Sheriff of Staffordshire to discontinue the burning of Ferns during a Royal progress, because the operation was usually followed by rain.

Mr. Phillips adverted to the memorable hail-storm which occurred immediately after the last great fire at Constantinople; the fact being fully authenticated by Mr. Walsh and Commodore Porter. That rain is common in South America after the burning of the Pampas, is familiar to meteorologists; and the attention of the members is especially solicited to this inquiry, in order that a more extended series of facts may be collected and compared.

MEETING OF BUSINESS, JUNE 29, 1841.

VICE PRESIDENT WETHERILL in the Chair.

REPORTS.

The Corresponding Secretary read his report for the last month, which was adopted.

The Botanical Committee] made the following report, which was ordered to be printed in the Society's proceedings.

Hall of Academy, June 22d, 1840.—The Botannical committee having examined the collection of plants lately presented to the Academy by Wm. Hembel, Esq., (being that portion of the Herbarium of the late Prof. C. S. Rafinesque, containing the specimens from which the descriptions in his Medical Flora have been made, together with other valuable European and Oriental plants,) respectfully state, that they have found them in good condition, and have accordingly proceeded to incorporate them with the Herbarium of the Academy. They suggest therefore that the thanks of the Society be presented to Mr. Hembel for the same.

On behalf of the Committee,

R. BRIDGES,
W. S. ZANTZINGER,
G. WATSON.

The Botanical committee also reported that the portion of the Society's Herbarium placed in the hands of Drs. Torrey and Gray, of New York, for arrangement, had been returned, not only in good order, but much improved by the addition of notes, in the form of names, with references to the Flora of North America, by Messrs. Torrey and Gray.

The committee on Mr. Conrad's paper on "New Species of Medial Tertiary and other Fossils of the United States," reported in favour of publication.

Dr. Morton announced that, agreeably to appointment, he had prepared a Memoir of William Maclure, Esq., late President of the Academy; whereupon it was on motion,

Resolved, that Dr. Morton be requested to read the said Memoir on Thursday evening next, July 1, at 8 o'clock; and that the scientific bodies of the city be invited to attend.

Resolved, That the Memoir be read in the Hall of the Academy, and that a committee be appointed to make the necessary arrangements.

The following members constitute the committee :—Dr. Goddard, Dr. Elwyn and Mr. Phillips.

The Society then proceeded to ballot for Corresponding Members, when the following gentlemen were duly elected :

Edward Charlesworth, Esq., of London.

Francis Alger, Esq., of Boston, Massachusetts.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. I. JULY, 1841. No. 4.

SPECIAL MEETING, JULY 1.

WILLIAM HEMBEL, ESQ., PRESIDENT, in the Chair.

Pursuant to appointment at the last meeting, Dr. Morton read "A Memoir of William Maclure, Esq., late President of the Academy;" whereupon, on motion of Prof. Johnson, it was unanimously

Resolved, That the members of this Academy have listened with deep interest and entire satisfaction to the discourse which has just been pronounced.

Resolved, That the thanks of the Academy be presented to Dr. Samuel George Morton for the able, faithful and eloquent memoir of our late lamented President, William Maclure, this evening read to the Society; and that he be requested to furnish a copy of the same for publication.

On motion, also

Resolved, That Prof. Walter R. Johnson, John Price Wetherill, Esq., and Dr. Robert Bridges, be a committee to communicate to Dr. Morton the foregoing resolutions.

STATED MEETING, JULY 6, 1841.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO THE LIBRARY.

Fifth Geological Report of the State of Tennessee. By Gerard Troost, M. D. 8vo. From the Author.

Documents relating to the Geological Survey of New York. (No. 150.) 8vo. 1841. From Mr. Vanuxem.

Etwas uber die Natur-Wunder in Nord America. Von Charles Cramer. 8vo. St. Petersburg, 1841. From the Author.

Description of an entire Head and other bones of the Mastodon. By W. E. Horner, M. D., and I. Hays, M. D. 4to. Philada., 1841. From the Authors.

Annales des Mines. Tome XVII. Received in exchange.

The Silurian System; from the Edinburgh Review for April, 1841. From the Author. (Anon.)

WRITTEN COMMUNICATIONS.—The Corresponding Secretary read a letter from Mr. Benjamin Silliman, Jr., acknowledging the receipt of a letter announcing his election as a corresponding member.

VERBAL COMMUNICATIONS.—Dr. Morton (Prof. Johnson taking the chair,) made the following communication.

"I submit to the inspection of the members eight skulls of the ancient Mexican race, for six of which I am indebted to Don J. Gomez de la Cortina, and for the other two to Dr. John P. Macartney, of the city of Mexico. All these crania have been received since the publication of my Crania Americana.

The skulls are of the following nations:

1. OTOMIS.—Four in number, with the high vertex, flat occiput,

great lateral diameter and broad faces, characteristic of the American race. The Ottomies preceded the Tolticas, and were the least cultivated of the demi-civilized nations of Anahuac. The largest of these heads gives 92 cubic inches of internal capacity; the smallest, that of a female, only 67.

2. CHECHEMECAN.—A single skull, of 83 cubic inches of internal capacity. This nation followed the Toltecas in the possession of Mexico in the 11th century of our era. They were nomades and hunters, but rapidly acquired the arts and civilization of their predecessors.

3. TLASCALAN.—A single cranium. These people formed one of the seven tribes who established themselves in Mexico during the Chechemecan monarchy, and are renowned in history for their warlike exploits. They are well known to have rendered Cortez essential aid in taking the city of Mexico. This skull gives an internal capacity of 84 cubic inches, and like the others of this series, is remarkable for its diameter between the parietal bones.

It is worthy of remark that the average internal capacity of these six authentic Mexican skulls, is precisely what I have accorded to these people, in my Crania Americana, viz. seventy-nine cubic inches. The mean of the facial angle also accords with my previous measurements, and gives 75°.

All these heads were obtained from tumuli or mounds, within the territories of the nations whose names they bear, so as to leave no doubt in the mind of the distinguished gentlemen from whom I received them, of their having pertained to individuals of those nations.

The two remaining crania are supposed to be those of AZTECKS, who also belonged to the confederacy of the seven tribes, but were the last to take possession. These were the people who subsequently obtained the supreme power, and under the name of Aztecs or Mexicans, governed the country at the epoch of the Spanish invasion, A. D. 1521. The Aztecs were a brave and intelligent people, but remarkable for bloody rites, both in their warlike and religious observances. They were less cultivated than the Toltecas,

but much more so than the surrounding barbarous tribes; and appear, in fact, to have been the connecting link between the two. The largest of these heads gives 85 cubic inches of internal capacity; the smallest 77; the medium being 80 cubic inches. The configuration of these heads is on the same model as the preceding series, and the mean facial angle differs but a single degree.

Whoever will be at the pains to compare this series of skulls with those from the barbarous tribes, will, I think, agree that the facts thus derived from organic characters, corroborate the position I have long maintained, that all the American nations, excepting the polar tribes, are of one race and one species, but of two great families, which resemble each other in physical but differ in intellectual character."

STATED MEETING, JULY 13, 1841.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

The following species of shells were presented by Mrs. L. W. Say, through Mr. Phillips, viz :

Melania nupera, M. subglobosa, M. isogona, M. exilis, M. undulata, M. armigera, M. conica, M. acuta. Anculotus concolor, A. costatus, A. Kirklandianus, A. carinatus, Physa Sayii. Very fine specimens, chiefly from the Wabash.

Chiton ——, new species? from Chapman's Island, Pacific Ocean.—From Dr. Ruschenberger.

Fusus lignarius. Trochus pharaonius, T. corallinus, Cyprea arenosa, Conus mitratus.—From Mr. J. S. Phillips.

Kinixis denticulata, Hallowell, from Liberia.—From Dr. William Blanding.

DONATIONS TO THE LIBRARY.

Planches du Voyage dans la Basse et la Haute Egypte; Par M. Denon. Folio. From Paul Beck, Esq.

Written Communications.—The following paper by Mr S. S. Haldeman, was read:

Descriptions of four species of Cyclas, three of which belong to the subgenus Pisidium: and two species of Cypris.

C. elevata.—Shell orbicular, cardinal tooth prominent, lamellar teeth thick; beaks elevated; color brownish olive. Length 0.55, height 0.50 in.

P. abruptum.—Shell olivaceous or chestnut, ovate; beaks nearly terminal, whence the outline slopes rather abruptly towards the ventral margin. Length 7.5, height 6. diam. 4.5 millim. Hab. Elk river, Maryland. The Rev. J. H. McFarland.

Obs.—Resembles P. amnicum, but the beaks are much more nearly terminal.

P. diaphanum.—Shell ovate, elongated, much inflated, texture thin; beaks considerably removed from the centre. Color pale ochraceous.] Length 5., height 3.5, diam. 2.5 millim. Hab. Brazil?

P. abditum.—Shell small, light ochraceous, ovate, rather elevated ventricose; beaks in contract. Length 4., height 3., diam. 2. millim. Hab. Springs in Lancaster Co. Pennsylvania.

Cypris agilis.—Light ochraceous, height rather more than half the length, base subrectilinear, height $\frac{5}{12}$ millim. Hab. Ditches in Lancaster county, Pa.

Cypris simplex.—Light ochraceous, elongated, nearly straight, both ends nearly alike; height 0.346 millim. Hab. Springs in Lancaster county, Pennsylvania.

A letter was read from Dr. M. E. Goheen, dated Monrovia, Africa, April 8, 1841. Dr. Goheen gives some interesting facts in reference to the natural history of this region, and suggests the importance of sending competent naturalists to explore its numberless and extraordinary productions.

A letter was read from Professor John Locke, of Cincinnati, Ohio, in answer to the announcement of his election as a corresponding member.

VERBAL COMMUNICATIONS.—Mr. S. S. Haldeman communicated the following facts in Ornithology.

1. Falco peregrinus.—It is asserted in the works on American Ornithology, that this bird builds its nest on trees, and not in the clefts of rocks, as in Europe. So far as my observations have gone, this remark is incorrect, inasmuch as they build in the cliffs which border the Susquehanna. This species remains in Pennsylvania ten or eleven months of the year.

2. Quiscalus versicolor.—Mr. Swainson in the "Menageries," (p. 298 of the Cabinet Cyclopædia,) describes the female of this bird as a new species, under the name of Q. purpuratus. I have shot the male and female together, carefully compared them with his descriptions, and confidently assert, that they belong to one and the same species.

3. Anser hyperboreus.—I have known but a single individual of this species to occur on this part of the Susquehanna river, (50 miles above tide water.) Wilson states that it is found on the Delaware.

4. Cygnus Americanus.—Many flocks visited this part of the Susquehanna about 15 years ago, during a continuance of foggy weather, but they have not since appeared.

Dr. Coates exhibited specimens of larvæ from the hollow of the straw of wheat, in the upper joint, obtained from a locality near Germantown, in which they were stated to be numerous.

No pupæ were observed by the collectors of these specimens in the same plants, other than those of the common appearance ascribed to Say's insect, and near the roots. None other were found in the present straw, after a careful examination.

Other remarks were made, on the probability of several animals, not all yet identified, infesting the wheat of Pennsylvania; on the beauty, learning and careful preparation of Mr. E. C. Herrick's recent memoir; on some interesting observations of that gentleman; on the effects of climate in varying the kinds and diversity of destructive insects; and on the influence exerted by the age of the plant over the selection of a point of deposit for eggs.

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Larvæ apparently similar to those above mentioned, in Blockley.

A body nearly the size of Say's pupa, of a pure, homogeneous straw colour, immersed in a depression of the straw, beneath a pupa of the appearance of Say's, and having, lower down than either of them, a round perforation extending into the hollow of the straw, with this cavity eroded on the inside; all from the third joint. This body subsequently assumed markings, having the appearance of the separation of a head, cases for antennæ, and other organization. Though this appearance of development took place, and the subject was kept from June 23d to July 9th, no fly had as yet been produced.

A very active larva, supposed to be that of a lepidopterous insect, 11-20ths of an inch long, colour reddish black, with three yellow streaks throughout its whole length, three anterior feet clawed, and it is believed some of the posterior; the animal imperfectly observed, from a wish to leave it but little disturbed. Found in Blockley, June 23d, in the hollow of a wheat straw; a round hole through which it could have entered, penetrating the cell in which it was feeding, and also the leaf-sheath with-

out; preferred its own cell to a fresh one; devoured a part which was quite dry; about July 4th or 5th, closed the opening of its cell with a mixture of dust of straw and a cement, and besmeared it throughout great part of its extent with a black substance; remained quiescent and apparently feeble till July 7th; and between the 7th and 9th escaped, leaving a hole of sufficient size for its passage in the paper cover of a bottle, and no visible skin in its former abode.

STATED MEETING, JULY 20, 1841.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

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Io spinosus, from Tennessee.—From Dr. Troost.

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Dr. B. H. Coates stated that Miss Morris had seen a Tipulide fly in the act of placing her eggs on or in a grain of wheat. This fly and these eggs she had in good preservation. On comparing it with Le Sueur's drawing, she could see no difference, except that the antennæ were not quite so long, and that the small nerves of the wing were more clearly defined and strongly marked. She had also found a flaxseed pupa in the cavity of the straw, with no hole, crack or visible mark where the larva could have entered. This pupa she has examined with a microscope, and she can detect no difference in it from that on the outside. This too she has carefully preserved.

These important facts and specimens may, in the conviction of Miss M., either prove her previous views correct, or that there are two species of this destructive pest.

Mr. Phillips submitted the following memorandum, which was read and ordered to be printed in the Society's proceedings.

In consequence of inquiries from different persons of the date of publication of the papers in the early volumes of the journal of this Institution, I have searched for the numbers as published with their original envelopes, bearing the date of the month of publication, and have been so successful as to find a complete series. As the covers of the numbers are thrown aside by the binder, and very few sets of the journal remain in their original form, I have prepared a list of the dates, in order that naturalists may be at no

loss in future to determine the claim of originality to descriptions of species, by the rule now most generally admitted, viz. priority of the date of publication.

The date of publication of the monthly issues of the first volume are printed in and bound up with the text.

VOL. II.

Pages	1 to 32	published	January	1821.
"	33 to 64	"	February,	"
"	65 to 96	"	March,	"
"	97 to 128	"	October,	"
"	129 to 160	"	November,	"
"	161 to 192	"	December,	"
"	193 to 224	"	June,	1822.
"	225 to 256	"	July,	"
"	257 to 288	"	August,	"
"	289 to 320	"	September,	"
"	321 to 352	"	November,	"
"	353 to 408	"	December,	"

VOL. III.

Pages	1 to 32	published	April,	1823.
"	33 to 64	"	May,	"
"	65 to 96	"	June,	"
"	97 to 128	"	July,	"
"	129 to 160	"	October,	"
"	161 to 192	"	November,	"
"	193 to 224	"	December,	"
"	225 to 256	"	January,	1824.
"	257 to 288	"	February,	"
"	289 to 320	"	March,	"
"	321 to 352	"	April 5,	"
"	353 to 384	"	April 27,	"
"	385 to 416	"	May,	"
"	417 to 480	"	June,	"

VOL. IV.

Pages	1 to 32	published	July,	1824.
"	33 to 64	"	August,	"
"	65 to 96	"	August,	"
"	97 to 128	"	November,	"
"	129 to 160	"	November 30,	"
"	161 to 200	"	December,	"
"	201 to 232	"	January,	1825.
"	233 to 264	"	February,	"
"	265 to 296	"	March 15,	"
"	297 to 328	"	March 28,	"
"	329 to 360	"	April,	"
"	361 to 407	"	May,	"

VOL. V.

Pages	1 to 32	published	June,	1825.
"	33 to 64	"	July,	"
"	65t o 128	"	August,	"
"	129 to 204	"	December,	"
"	205 to 228	"	February,	1826.
"	229 to 260	"	November,	"
"	261 to 292	"	November,	"
"	293 to 324	"	December,	"
"	325 to 410	"	February,	1827.

VOL. VI.

Pages	1 to 38	published	March,	1827.
"	39 to 56	"	June,	"
"	57 to 106	"	February,	1828.
"	107 to 178	"	July,	1829.
"	179 to 244	"	August,	1830.
"	245 to 327	"	April,	1831.

The remainder of the Journal is published in half volumes.

MEETING FOR BUSINESS, JULY 27, 1841.

VICE PRESIDENT MORTON in the Chair.

REPORTS OF COMMITTEES.

The Corresponding Secretary read a report of his proceedings during the past month; which was adopted.

The Committee appointed at the last meeting for business to prepare a correct list of Members and Correspondents, reported that they had accomplished said duty; whereupon 250 copies of the list were ordered to be printed.

After various other business, the society proceeded to ballot on the nominations of the last meeting of business, whereupon the following gentlemen were duly elected Corresponding Members:

Owen Mason, Esq., of Providence, Rhode Island.
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PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. I. AUGUST, 1841. No. 5.

STATED MEETING, AUGUST 3, 1841.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO CABINET.

69 species of Reptiles, chiefly from Europe and Northern Africa, presented by Messrs. Hembel, Johnson, Hallowell and Morton, but chiefly by the first named gentleman, viz.:

1. Testudo Mauritanica.
2. Cistuda Europæa.
3. Kinosternon scorpioides.
4. Iguana tuberculata.
5. Platydactylus thecadactylus.
6. Platydactylus fascicularis.
7. Hemidactylus Mabouia.
8. Hemidactylus maculatus.
9. Spheriodactylus porphyreus.
10. Anolis punctatus.
11. Proctotretus Chilensis.
12. Proctotretus tenuis.
13. Agama muricata.
14. Agama spinosa.

but much more so than the surrounding barbarous tribes; and appear, in fact, to have been the connecting link between the two. The largest of these heads gives 85 cubic inches of internal capacity; the smallest 77; the medium being 80 cubic inches. The configuration of these heads is on the same model as the preceding series, and the mean facial angle differs but a single degree.

Whoever will be at the pains to compare this series of skulls with those from the barbarous tribes, will, I think, agree that the facts thus derived from organic characters, corroborate the position I have long maintained, that all the American nations, excepting the polar tribes, are of one race and one species, but of two great families, which resemble each other in physical but differ in intellectual character."

STATED MEETING, JULY 13, 1841.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

The following species of shells were presented by Mrs. L. W. Say, through Mr. Phillips, viz :

Melania nupera, M. subglobosa, M. isogona, M. exilis, M. undulata, M. armigera, M. conica, M. acuta. Anculotus concolor, A. costatus, A. Kirklandianus, A. carinatus, Physa Sayii. Very fine specimens, chiefly from the Wabash.

Chiton ——, new species? from Chapman's Island, Pacific Ocean.—From Dr. Ruschenberger.

Fusus lignarius. Trochus pharaonius, T. corallinus, Cyprea arenosa, Conus mitratus.—From Mr. J. S. Phillips.

Kinixis denticulata, Hallowell, from Liberia.—From Dr. William Blanding.

DONATIONS TO THE LIBRARY.

Planches du Voyage dans la Basse et la Haute Egypte; Par M. Denon. Folio. From Paul Beck, Esq.

WRITTEN COMMUNICATIONS.—The following paper by Mr S. S. Haldeman, was read:

Descriptions of four species of Cyclas, three of which belong to the subgenus Pisidium: and two species of Cypris.

C. elevata.—Shell orbicular, cardinal tooth prominent, lamellar teeth thick; beaks elevated; color brownish olive. Length 0.55, height 0.50 in.

P. abruptum.—Shell olivaceous or chestnut, ovate; beaks nearly terminal, whence the outline slopes rather abruptly towards the ventral margin. Length 7.5, height 6. diam. 4.5 millim. Hab. Elk river, Maryland. The Rev. J. H. McFarland.

Obs.—Resembles P. amnicum, but the beaks are much more nearly terminal.

P. diaphanum.—Shell ovate, elongated, much inflated, texture thin; beaks considerably removed from the centre. Color pale ochraceous.] Length 5., height 3.5, diam. 2.5 millim. Hab. Brazil?

P. abditum.—Shell small, light ochraceous, ovate, rather elevated ventricose; beaks in contract. Length 4., height 3., diam. 2. millim. Hab. Springs in Lancaster Co. Pennsylvania.

Cypris agilis.—Light ochraceous, height rather more than half the length, base subrectilinear, height $\frac{8}{12}$ millim. Hab. Ditches in Lancaster county, Pa.

Cypris simplex.—Light ochraceous, elongated, nearly straight, both ends nearly alike; height 0.346 millim. Hab. Springs in Lancaster county, Pennsylvania.

A letter was read from Dr. M. E. Goheen, dated Monrovia, Africa, April 8, 1841. Dr. Goheen gives some interesting facts in reference to the natural history of this region, and suggests the importance of sending competent naturalists to explore its numberless and extraordinary productions.

A letter was read from Professor John Locke, of Cincinnati, Ohio, in answer to the announcement of his election as a corresponding member.

VERBAL COMMUNICATIONS.—Mr. S. S. Haldeman communicated the following facts in Ornithology.

1. Falco peregrinus.—It is asserted in the works on American Ornithology, that this bird builds its nest on trees, and not in the clefts of rocks, as in Europe. So far as my observations have gone, this remark is incorrect, inasmuch as they build in the cliffs which border the Susquehanna. This species remains in Pennsylvania ten or eleven months of the year.

2. Quiscalus versicolor.—Mr. Swainson in the "Menageries," (p. 298 of the Cabinet Cyclopædia,) describes the female of this bird as a new species, under the name of Q. purpuratus. I have shot the male and female together, carefully compared them with his descriptions, and confidently assert, that they belong to one and the same species.

3. Anser hyperboreus.—I have known but a single individual of this species to occur on this part of the Susquehanna river, (50 miles above tide water.) Wilson states that it is found on the Delaware.

4. Cygnus Americanus.—Many flocks visited this part of the Susquehanna about 15 years ago, during a continuance of foggy weather, but they have not since appeared.

Dr. Coates exhibited specimens of larvæ from the hollow of the straw of wheat, in the upper joint, obtained from a locality near Germantown, in which they were stated to be numerous.

No pupæ were observed by the collectors of these specimens in the same plants, other than those of the common appearance ascribed to Say's insect, and near the roots. None other were found in the present straw, after a careful examination.

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PROCEEDINGS

OF THE

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OF PHILADELPHIA.

VOL. I. AUGUST, 1841. No. 5.

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2. Cistuda Europæa.
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9. Spheriodactylus porphyreus.
10. Anolis punctatus.
11. Proctotretus Chilensis.
12. Proctotretus tenuis.
13. Agama muricata.
14. Agama spinosa.

15. Bronchocela cristatella.
16. Calotes versicolor
17. Calotes ophiomachus.
18. Calotes jubatus.
19. Ecphimotes torquatus.
20. Polychrus marmoratus.
21. Ameiva vulgaris.
22. Ameiva Aubenii.
23. Lacerta viridis.
24. Lacerta muralis.
25. Lacerta stirpium.
26. Lacerta ocellata.
27. Lacerta taurica.
28. Eremias rubro-punctatus.
29. Cnemidophorus.
30. Cnemidophorus lemniscatus.
31. Sphenops frenatus.
32. Gongylus (Scincus) ocellatus.
33. Gongylus (Scincus) Bojeti.
34. Plestiodon Aldrovandi (Scincus.)
35. Eumeces Spixii.
36. Eumeces Mabouia.
37. Ablepharis Peronii.
38. Zonurus cordylus.
39. Acontias meleagris.
40. Calamaria acutiventris.
41. Psammophis sibilans.
42. Psammophis moliniger.
43. Lycodon hebe.
44. Coronella Merremii.
45. Coronella austriaca.
46. Coronella cobella.
47. Coronella rhombeata.
48. Herpetodrys fuscus.
49. Coluber viridi-flavus.
50. Coluber pantherinus.
51. Coluber quinconiatus.
52. Coluber viperinus.
53. Coluber constrictor.
54. Tropidonotus natrix.
55. Tropidonotus stolatus.
56. Tropidonotus saurita.
57. Tropidonotus schistosus.
58. Tropidonotus fasciatus.
59. Tropidonotus bipunctatus.
60. Vipera berus.

61. Vipera arietans.
62. Trigonocephalus cenchris.
63. Naia haje.
64. Elaps lacteus.
65. Rana esculenta.
66. Bufo variabilis.
67. Bufo scaber.
68. Bufo calamita.
69. Hyla lateralis.

A species of Remora, from the Atlantic Ocean. From Dr. Hallowell.

DONATIONS TO LIBRARY.

A description of Recent Shells, arranged according to the Linnean method, with particular attention to the synonomy. By Lewis Weston Dillwyn, F. R. S. 8vo. 2 vols. London, 1817. From Dr. Morton.

Remarks on the present state of the evidence in regard to the Hessian Fly. By B. H. Coates, M. D. 12mo. 1841. From the Author.

Memoirs of the Historical Society of Pennsylvania. Vol. IV., Pt. 1. From the Society.

Memoir of the Geological Survey of the State of Delaware. By James C. Booth, A. M. 8vo. Philad., 1841. From the Author.

Mrs. L. W. Say presented, through Mr. Phillips, all the copper-plates (68 in number) and the remainder of the printed text and impressions of the plates of Say's American Conchology, viz.:

2 complete sets, one for the library and one for sale or exchange.

No. 1, 12 copies with col'd plates.

No. 2, 11 do. do. do. do. 4 copies without plates.

No. 3, 62 do. do. do. do. 36 do. do. do.

No. 4, 72 copies with col'd plates. 70 copies without plates.
No. 5, 81 do. do. do. do. 12 do. do. do.
No. 6, 75 do. do. do.
No. 7, 2 do.

Also about 25 coloured impressions from 8 (each) of the plates belonging to No. 6.

And about 200 coloured impressions from 7 (each) of the plates belonging to No. 7.

Mrs. Say desires that the proceeds of this work, whether by sale or exchange, may be appropriated mainly to the extension of the Academy's Library in this department of science.

The Corresponding Secretary read a letter from Mr. John Pennington, Secretary of the Historical Society of Pennsylvania, accompanying the volume of the Society's Memoirs presented this evening.

A letter was also read from Mr. Spencer F. Baird, of Carlisle, Pa., in relation to some objects of Natural History brought from Arkansas, for the Academy, by Lieut. Carlton, U. S. A.

Dr. Morton read another letter from Mr. Baird, in reference to the habits of the Emys geographica, as observed in the vicinity of Carlisle, in this state.

A letter was read from Dr. Elwyn, announcing that the collection of Fossils belonging to the proprietor of the Hotel at Trenton Falls, New York, was offered for sale, and suggesting the propriety of some action of the Academy thereon.

NEW BUSINESS.

On motion of Mr. Phillips, Resolved, that the Committee on the Proceedings be authorised to carry into effect the donation of Say's American Conchology, received this evening from Mrs. L. W. Say.

Unanimously Resolved, That the thanks of the Society be

tendered to Mrs. Say for her liberal donation of the edition of Say's American Conchology, presented to the Academy this evening.

STATED MEETING, August 10, 1841.

Vice President Morton in the Chair.

DONATIONS TO LIBRARY.

Osservazioni sulla larve, ninfe, e abitudini della Scolia flavifrons, del Carlo Passerini. 4to. Pisa, 1840. From the Author.

American Journal of Science and Arts. Vol. xli., No. 1. July, 1840. From the Editors.

Journal of the Asiatic Society of Bengal. Nos. 19, 20, 21, (New Series.) From the Editors.

Proceedings of the American Philosophical Society, for May and June, 1841. From the Society.

First Book of Natural History, (Physiology and Animal Mechanism.) From the French, by W. S. W. Ruschenberger, M. D. Philad. 12mo. 1841. From the Translator.

A Voyage Round the World, including an Embassy to Muscat and Siam, in 1835, 1836 and 1837. By W. S. W. Ruschenberger, M. D. Philad. 8vo. 1838. From the Author.

Three Years in the Pacific; including notices of Brazil, Chili, Bolivia, and Peru. By an Officer of the U. S. Navy, (W. S. W. Ruschenberger, M. D.) 8vo. Philad. 1834. From the Author.

WRITTEN COMMUNICATIONS.—Miss M. A. Morris, of Germantown, Pennsylvania, through Dr. B. H. Coates, submitted the following "Observations on the development of the Hessian Fly," dated August 6, 1841.

"Having completed a series of observations on an insect that has for years destroyed the wheat in the neighbourhood of Philadelphia, I now beg leave to lay them before the Academy of Natural Sciences, with specimens of the insect in all its forms, from the egg to the perfect fly. To those familiar with Mr. Say's description, accompanied by Mr. Le Sueur's accurate drawings, given in the first volume of the Journal of the Academy, no doubt can arise as to the identity of the male insect now presented with the Cecidomyia destructor of Mr. Say; but the female differs materially in colour, her body being entirely black or blackish-brown; and the wings are destitute of the hairy fringe so conspicuous in the male.

In the months of March, April and May, I have frequently found the larvæ feeding in the centre of the straw, from the root up to above the last joint. They were then of a pale greenish white colour, translucent, with an internal visceral green line; mandibles of a dark brown colour. At this early period the larvæ have frequently been so small that a magnifying glass has been necessary to detect them,

In the present year, 1841, my observations were unavoidably delayed until the first of June; when I found that the larvæ near the root had left the inside of the straw, and become pupæ on the outside, under the sheath. On the 20th of June, most of the puparia were empty; and on agitating the wheat, swarms of flies rose from off the grain, where they had been resting. I was fortunate in obtaining one of these while in the act of depositing her egg on the grain. Thus interrupted, she placed six on my finger. Three of these I have glued to the paper near her. When deposited they were of a pale straw colour, and inconspicuous to the naked eye, unless collected in numbers. On the same day, I found

larvæ in the straw, generally above the last joint. They were feeding in or near the joint, with their heads always downwards.

The wheat, which had to this time (June 20th) promised an abundant harvest, began to shrivel; and a practised eye could detect, from the appearance of the grain, in which stalk we were to look for the larvæ.

From June 20th to July 10th, the flies continued to deposit their eggs on the grain; though on the last mentioned date but few were to be met with. By July 12th, the grain in this neighbourhood was all reaped; and on that day I had a sheaf of wheat placed in the library, where I could with more accuracy watch the progress of the larvæ remaining in the straw. They continued to feed for some days; when they became quiescent, fixed themselves by their mandibles in the joint of the straw, and with their heads downwards, gradually assumed a chesnut brown colour; the outer skin becoming the puparium.

From a handful of infested straws placed under a bell glass, I have the following results. Most have perished; some have passed into the pupa state in the centre of the culm; a few of the perfect insects I have liberated from the centre of the straw, by opening a passage for them with my penknife; and great numbers have been destroyed by the Ceraphion destructor; two of which I send with the Cecidomyia.

From the sheaf of wheat I have the following results. Many of the larvæ perished; some became pupæ without change of situation; and the flies continued to rise from the straw until the 31st of July. Of these I succeeded in catching twenty-six. Five are Cecidomyias, and the remainder are Ceraphion destructor; some of which are destitute of wings. A small number of pupæ are still to be found in the field in the stubble.

From this series of facts it might be presumed that the history of this interesting and destructive insect was decided; but the statements of observers whose information and accuracy cannot be questioned, prove discrepancies in its history that can only be reconciled by supposing that there are two species under observation. The species now presented will agree with Mr. Say's statement, that

"the perfect fly appears early in June, lives but a short time, deposits its eggs and dies." The remainder of Mr. Say's history must apply to that species which has been so frequently observed to deposit its eggs on the leaf."

A letter was read by the Corresponding Secretary from Major James D. Graham, U. S. A., dated July 30, 1841, tendering his acknowledgments for his election as a corresponding member of the Academy.

STATED MEETING, AUGUST 17, 1841.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

Gardener's Dictionary. By Philip Miller, F. R. S., F. A. 7th edition. Fol. London, 1759. From Mr. Phillips.

Report of the Secretary of War in reference to the construction of the Potomac Aqueduct. 8vo. Washington, 1841. From Col. Abert.

WRITTEN COMMUNICATION.—A lettter was read from Owen Mason, Esq., of Providence, Rhode Island, acknowledging his election as corresponding member of the Society.

Dr. Morton (Dr. Coates taking the chair) made some remarks on the sutures of the cranium as connected with the growth of the corresponding bones.

He adverted to the opinion long in vogue, that the chief use of the sutures was to facilitate the process of parturition; a theory which is refuted by the fact that they exist in the skulls of all the ovipar-

ous animals as strongly marked as in those of the viviparous class. That they give a certain increased facility to parturition is unquestionably true; but their more uniform function is to subserve the growth of bones, which they do by osseous deposition at their margins; hence a suture in the cranium is equivalent to the surface which intervenes between the shaft and epiphysis of a long bone. The latter grows in length by deposition at its extremities, and the epiphysis disappears, like the suture of the cranium, when the growth of the bone is completed.

Dr. Morton illustrated these views by means of the skull of a mulatto boy who died when about eighteen years of age. In this instance the sagittal suture is entirely wanting; in consequence of which the lateral growth of the cranium has ceased in early infancy, (no doubt when the suture became consolidated,) so that the diameter between the parietal protuberances is less than 4.5 inches, instead of 5, which is about the negro average. The squamous sutures, however, are fully open, whence the skull has continued to expand in the upward direction until it has reached the full vertical diameter of the negro, viz., 5.5 inches. The coronal suture is also wanting, excepting some traces at its lower or lateral extremities. The result of this deficiency is seen in the very inadequate developement of the forehead, which is low and narrow, but elongated below by means of the various craniofacial sutures. The lambdoidal suture is complete, thus permitting of posterior elongation; and the growth in this direction, together with the great vertical diameter already mentioned, has allowed the brain to attain the bulk of seventy-seven cubic inches, or six or eight inches short of the negro average.

The growth of the brain and that of the skull are of course consentaneous; nor is it probable, that either could be developed without the sutures: hence there is reason to believe that the absence of these may be a cause of idiocy, by preventing the growth of the brain, and thus impairing or destroying its functions.

Dr. Coates inclined to the opinion that, in cases similar to those presented by Dr. Morton, the disappearance of the sutures was rather to be regarded as a consequence than a cause; and took place, as in old age, because the necessity for further extension of

growth no longer existed, from the final cessation of enlargement in the brain. Uniting with Dr. Morton in the belief that the office of the sutures was to permit a more rapid development and growth of the cranium, by allowing ossification to go on from several centres at the same time, the bones of the skull, in this respect, resembling the trunk and epiphyses of a long bone, Dr. Coates inclined, at the same time, to the double belief that growth and other changes took place, not at the sutures only, but throughout the whole extent of a living cranial bone. The parietal bone of a newly born infant was not mathematically of the same shape with the central portion of that of an adult. Were the brain, in one of the cases referred to by Dr. Morton, to acquire, by any means, a further enlargement, it ought to be presumed, in the present state of our physiological knowledge, that the bone would enlarge to a corresponding extent; and it would be therefore, inferred that the ossification of the sutures would not limit the growth of the brain.

This view Dr. Coates endeavoured to illustrate by a comparison with the opinion of Mr. Serres, that the relative and successive growth of the parts of the brain were a *consequence* of the relative size of their arteries during the period of formation; in regard to which, he believed, physiologists were much agreed in the conclusion that the developement of a portion of the brain and of its corresponding artery were coetaneous processes; but that if any priority in causation were to be allowed, it should be assigned to the organ; in consequence of the existence and comparative size in outline of which, it became necessary, if the ability of the system permitted, that a proportionate supply of blood should be furnished to the part, through a vessel of a suitable size, in order to afford new materials for enlargement. Primary growth, he imagined, took place in the interstitial substance, and that the larger arterial branches, and even the capillaries were rather an instrument or adjuvant than a cause. The formation of additions to existing solids would thus resemble that of the primordia of the fœtus, near which no vessels of the parent are observed, while the vascular appearances are found to approach the newly organized individual at a period subsequent to its formation.

Dr. Coates called the attention of the Academy to the whiteness, thinness, and semi-transparency of the specimen exhibited by Dr. Morton, in all the lines usually exhibiting the sutures. This he considered, not only as indicating the previous existence of real sutures, but as corresponding with the views entertained, by some late comparative anatomists, in regard to the analogy of parts. He alluded to those who believe the analogous parts in animal formations to exist to a very great extent indeed, although composed of very diversified materials, and adapted to very different purposes in the various beings in which they exist.

ORDINARY MEETING, August 24, 1841.

Vice President Morton in the Chair.

DONATIONS TO CABINET.

The Society received from the estate of the late William Maclure, through the hands of his brother and executor Alexander Maclure, a five feet Achromatic telescope, 3¼ inches in the aperture, with two terrestrial and two celestial eye-pieces, adjusting screw, &c. It bears the maker's name, —"Lerebours, Quai de l'Horloge, à Paris."

To the Collection of Shells: Voluta pallida, Conus geographicus, Turbinella craticulata. From Mr. Draper.

Bulimus multicolor (Rang) Brazil; and a Helix, probably nondescript, from the Bonin Islands. From Dr. Ruschenberger.

To the Mineralogical Collection: Fine specimens of laminated Selenite, lamellar Sulphate of Strontian and Dog-tooth Spar, from Lockport, N. York. Also, Specular Iron, two specimens, doubly refracting Spar, and a gigantic crystal of Calcareous Spar,—a hexaedron with truncated angles, and weighing 27 lbs.; from Rossie, New York. All presented by Mr. Ashmead.

Fossiliferous Chert, composed of organic remains; radiated nodular Iron Pyrites; Galena and Fossiliferous Limestone, from the vicinity of Sunbury, Penn. And radiated Anthracite from Bear-gap Mine, Dauphin County, Penn. Presented by Prof. Johnson.

DONATIONS TO LIBRARY.

Journal of Boston Society of Natural History. Vol. 3, No. 4. 8vo. 1841. From the Society.

Report on the invertebrate Animals of Massachusetts, comprising the Mollusca, Crustacea, Annelidæ and Radiata. By A. A. Gould. 8vo. Cambridge, 1841. From the Author.

Account of some Parhelia observed March, 1841. By A. D. Chaloner, M. D. From the Author.

The New Harmony Disseminator, complete. From Mrs. Say through Mr. Phillips.

Physiology and Animal Mechanism. From the French by Dr. Ruschenberger. 2d edit. 12mo. From the Translator.

Calcutta Journal of Natural History. Conducted by John McClelland. Nos. 1, 2, 3 and 4. 8vo. Calcutta, 1841. From the Editor.

The following works, which once formed part of the Library of the Knights of Malta, were presented by Mr. Thomas Ryan:

R. P. Martini Becani Theologia Scholastica. 2 vols. 12mo. Paris, 1617 and 1622.

Breve trattato de Cristo, de Emmanuele Santz. 4to. Catania, 1691.

Opere del Nicolo Causino. 12mo. Venizia.

Les Devoirs de l'Homme. Traduit du Latin de Pufendorf, par Jean Barbeyrac. 12mo. Amsterdam.

Ordinanze Militari. 4to. Malta, 1777.

L'idea del Cavalier, mostrato nella vita di Agostino Grimaldo. 4to. Messina, 1662.

De Vermaarde Reizen van Heer Vincent le van Marsilien. 4to. 1654. Amsterdam.

Two Theological MSS. beautifully written, and bound in Quarto.

Written Communication.—Mr. Speakman submitted some views on the nature of Light and Heat; which communication was referred to a committee composed of Dr. Goddard, Mr. Lukens and Dr. Griscom.

Verbal Communications.

Professor Johnson exhibited several specimens of *crystalloid* anthracite and bituminous coal, and stated some of the circumstances which seem to determine the assumption by this mineral, of certain figures, contrary to the assertion of many mineralogists that it has no definite form.

The forms which anthracite occasionally presents are, 1. *Ovoid*, which causes it, in breaking, especially when the fracture takes place from long exposure to the atmosphere, to fall into spheroidal masses with salient portions strongly reminding us of truncated angles in ordinary crystals. This figure has often been observed in one of the beds of anthracite found on Beaver creek; and a large specimen furnished by Mr. Jacob Thomas of Beaver Meadow, was exhibited, showing the truncated borders along the lines of separation in a very remarkable manner, and also displaying beautiful iridescent colours. It was remarked that coal affecting this form, is frequently found to leave a considerable portion of oxide of iron among its earthy residue; but that the whole of the latter was not usually a large per centage of the coal.

2. The next definite form mentioned as affected by coal, is a *radiated* structure well characterized in several specimens from the third bed, from the bottom of the formation at Bear-gap, Dauphin county, Penna. This structure was likewise illustrated in a sample of Welsh bituminous coal. The radiations generally proceed from two points at no great distance from each other and forming two sections of conical surface, unite at certain distances from their points of departure into a single cylindrical section near the termination of the rays. The exterior of these radii is of a silky lustre, striated, and sometimes interrupted by the interposition of fragments of organic remains, in the state of fossil charcoal. Very large stems are occasionally found with radiated, crystalloid anthracite adhering to the opposite sides, the directions of the striæ being on the two sides very nearly the same.

3. The rhombic hexaedron was exhibited in a well marked specimen of anthracite adhering to its accompanying slate. Few mineral forms are better defined than this mass of anthracite. The angles can be determined with the goniometer with tolerable precision, liable however to the slight uncertainty arising from the presence of organic bodies, tending to oppose the crystalline arrangement.

4. An octahedron with tolerably well-defined faces striated in different directions on the adjoining sides, was exhibited, and the circumstance of possessing a large portion of earthy matter was noticed, as belonging to many samples of coal which exhibit this exterior aspect.

The presence of several well marked crystalloid forms being thus established, Prof. Johnson adverted to the argument which such forms had been supposed to furnish against the vegetable origin of coal, and stated that in the very samples under examination were seen the most incontrovertible evidences of the source from which not only bituminous coal, but anthracite also had been derived. In one and the same specimen of the latter, were seen mineral charcoal, natural coke, and true anthracite, indicating as well the vegetable origin of all, as the process of formation, by which the last two had probably been derived from the intermediate state of bituminous coal.

In accounting for the supposed impossibility of crystalline structures being formed out of organic matter, he observed that a distinction is to be drawn between *organic elements* and *organized substances*, and that the *former* may often be so proportioned, when derived by distillation, fermentation or other chemical reaction from the latter, as to be capable of assuming definite figures. The production of coal from vegetable bodies is supposed, on all hands, to have resulted from a slow chemical decomposition of the latter and the establishment of new orders of affinity between the original constituent atoms. The carbon as well as the other materials of vegetables was by this process reduced, at least in part, to the condition of ultimate molecules, instead of being merely mechanically divided into small particles. It would therefore be capable of obeying any law of movement which either its own affinities or those of the earthy constituents which had entered into the composition of the vegetables from which it had been derived, might tend to impress. That it is the earthy constituents which determine the forms assumed by coal, seems probable from the fact that the more earthy residuum of a particular kind any coal contains, the more prone does it appear to be to assume a crystalloid structure.

Reference was made, in this connexion, to those cubic, rhombic and columnar structures which often occur in both anthracite and bituminous coal, and which not unfrequently exhibit to the eye, especially after partial incineration, the clearest evidence of a tendency among the earthy ingredients to regulate the arrangement of forms throughout the whole mass. Prof. Johnson also stated that the result of a considerable number of analyses of the ashes of coal, appeared to favour the presumption that the two principal constituents, silica and alumina, are in definite proportion to each other,

and may therefore have a power of assuming definite forms. The oxide of iron in the ashes is commonly derived from the decomposition of pyrites, while the lime and magnesia in the coal are probably in the state of carbonates, unless where the production of sulphuric acid by the decomposition of the pyrites has converted the former into gypsum and the latter into epsom salt. From this latter play of affinities the carbonate of iron would be produced, and subsequently the sesquioxide, often seen covering the interstices of outcrop coal and forming bog ore in the springs which proceed from coal seams, the coal in the meantime retaining the form impressed by the agency of the silicate of alumina, and having a portion of its interstices or those of the underlying slates filled up with crystallized sulphate of lime.

Admitting the justness of this view of the causes which produced crystalloid forms in coal, we have no more difficulty in accounting for the number of different forms which it occasionally exhibits than for the analogous variety in regard to other minerals; the carbonate of lime, for example, which, as is well known to mineralogists, takes on a far greater number of distinct forms.

Prof. Bailey stated, that he had recently examined specimens of Calcareous marl from the cretaceous formation discovered by J. N. Nicollet, Esq., on the Upper Missouri, above the mouth of the Sioux river. These specimens proved to contain fossil Foraminifera, (Polythalamia of Ehrenberg,) similar to those previously detected by Prof. Bailey in the calcareous portions of the same formation in New Jersey and Alabama.

He also mentioned certain silicified wood found near Fredericksburg, Va., in the feldsphalhic sandstone, called by Prof. W. B. Rogers "upper secondary sandstone." This wood is in a peculiar state of preservation, the vegetable matter having been completely replaced by silica, without any filling up of the cells or tubes. In consequence of this state of the wood, it is easy to subject it to microscopic examination without the trouble and expense of forming polished slices. All that is required is to break off thin pieces with the point of a knife and moisten them; they then show the most delicate markings of the tissue beautifully preserved. The discs with concentric rings, and other characters peculiar to Coniferæ, are so distinctly visible as to leave no doubt, that this wood which is commonly called in Fredericksburg, "Petrified hickory," is really fossil pine. In the same formation, fossil plants of the family Cycadeæ, have been detected.

MEETING FOR BUSINESS, AUGUST 31, 1841.

VICE PRESIDENT MORTON in the Chair.

The Society proceeded to the transaction of private business, after which the balloting for members and correspondents took place, when the following gentlemen were announced as duly elected:

MEMBERS.

Isaac R. Jackson, Esq.

CORRESPONDENTS.

George B. Sowerby, Esq., of London.
Thomas M. Brewer, Esq., of Boston, Mass.
Francis Markoe, Jr., Esq., of Washington City.
John Lindley, Esq., of London.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. I. SEPTEMBER, 1841. No. 6.

STATED MEETING, SEPTEMBER 7, 1841.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO CABINET.

To the Mineralogical Cabinet.—Carbonate of Lead, Washington mine, Davidson county, N. Carolina; Tetredymite, or Telluric Bismuth Glance, Scharnowitz, Hungary; and Titaniferous Iron. Received by the Curators in exchange. Inthracite interstratified with charcoal, from Beaver Meadow, Pennsylvania. Slate with sulphate of lime, Bear-gap. Mineral charcoal with interspersed anthracite, from Beaver, Luzerne County. Stigmaria ficoides, Bear-gap. Anthracitized fossil wood, Nesquehoning. Slate, from bottom of slope No. 5, Beaver Meadow. From Professor Johnson.

To the Cabinet of Shells.—Cypræa Tigris, C. Arabica, C. histrio, C. Lynx, Turbinella cornigera, Strombus lentiginosus, S. auris Dianæ, S. pugilis, S. gibberulus, Pterocera

lambis, Terebra maculata, T. vittata, Oliva erythrostoma, O. ventricosa. Buccinum papillosum, Murex triqueter, Ranella argus, Turbo argyrostomus, Cerithium obeliscus, Trochus californicus, Haliotis Cracherodii, Meleagrina margaritifera, Spondylus spathaliferus. Presented by Mr. Draper.

DONATIONS TO LIBRARY.

Laws of the General Assembly of the Commonwealth of Pennsylvania, passed in the session of 1840. 8vo. Harrisburg, 1840. From Mr. Wm. S. Vaux. (This volume contains the act exempting the Academy from taxation.)

WRITTEN COMMUNICATIONS.—A letter was read from Francis Markoe, Jr., Esq., acknowledging the announcement of his election as a corresponding member of the Society.

Mr. S. S. Haldeman submitted "Descriptions of two new Freshwater Shells."

Amnicola attenuata.—Shell very long and slender, with six obliquely revolving, very convex turns, separated by a deep suture; aperture small, ovate, with the peritreme level and continuous, as in Cyclostoma. Length $\frac{1}{3}$ inch. Hab., a spring in Montgomery Co., Virginia, connected with Roanoke river.

Obs.—Very like, but more slender than Cyclostoma lapidaria, Say; which I refer to this genus, as well as C. Cincinnatiensis, Lea; retaining for this species Mr. Anthony's specific name Sayana, under which appellation the shells were distributed by this gentleman. This substitution is necessary, because the previously described Paludina Cincinnatiensis is an Amnicola. Melania integra, Say, is an Amnicola also.

Physa globosa.—Shell globose, translucent, spire very short and rounded; aperture very wide, occupying considerably more than half the entire area of the shell; fold well marked, whorls three. Length 1-5 inch. Hab., mouth of Nolachucky river, attached to submerged rocks, in the rapids.

OBS.—This species is a valuable acquisition to Malacology, as it enables us to place the genus Ancylus among the Limneans, where it has hitherto held but a doubtful place. Any one who has examined the animal of Ancylus, cannot have failed to observe its similarity to Planorbis; and some authors assert that it ascends to the surface of the water to breathe *air*. This I doubted, because the species with which I am familiar, inhabit the interior of bivalve shells, or the surface of stones in rapid water; whence it is impossible for them to rise to the surface, and regain their previous position. I hence infer that they breathe *water*, as well as the Physa above described, inhabiting as it does, the middle of a river, in rapids nearly two feet deep at low water, and without objects rising above the surface. It is highly probable that air-breathing Ancyli exist; and it is even possible that the same organ may be adapted to the respiration of both air and water.

VERBAL COMMUNICATIONS.—Professor Johnson offered some remarks on the specimens of Anthracite and Fossil charcoal presented by him this evening. These observations are necessarily reserved for a future number.

STATED MEETING, SEPTEMBER 14, 1841.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO CABINET.

Collection of exotic Birds stuffed and mounted, presented by Dr. James A. M'Crea, viz.:

Oriolus melanocephalus; Alcedo ispida; Merops viridis, (2 specimens;) Psittacus Bengalensis; Fringilla Bengalensis; Alcedo Smyrnensis; Tanagra rubra; Muscicapa ruticella;

Fringilla cyanea; Icteria dumicola; Lanius solarius; Coracius nævia; Sylvia striata; Bucco cyanocollis; Sturnus ——; Coblepyris ——.

Fossils from the vicinity of Sunbury, presented by Professor Johnson, viz.: internal cast of a Productus, and three specimens of Juglandites, (Parkinson.)

50 specimens of minerals from Nova Scotia, presented by Dr. Gessner, of St. Johns, New Brunswick, viz.: Stilbite, Thomsonite, Laumonite, Oxide of Manganese, Amethyst, Agate, Mesotype, Jasper, Specular iron, Calcedony, Hematite, Sulphate of Barytes, Magnetic oxide of iron, Chabasie and Sulphate of lime.

DONATIONS TO LIBRARY.

Stockholm's Flora eller Kurrt beskrifning af de vid Stockholm i vildt tillstand forekommande Vaxter. Af Joh. Em. Wikstrom. 8vo. Stockholm, 1840. From the Author.

Report of an Examination of the Bear Valley Coal District in Dauphin county, Pennsylvania. By Walter R. Johnson, A. M. 8vo. Philadelphia, 1841. From the Author.

WRITTEN COMMUNICATIONS.—A letter was read from Mr. W. D. Newman, Secretary of the U. S. Naval Lyceum at Brooklyn, N. Y., returning thanks on the part of the Society for a copy of the Academy's Journal presented to them.

A communication was also read from the Cav. Ferdinando Tartini, Secretary of the Italian Scientific Convention, announcing the third Annual *Re-union* to take place at Florence in September of the present year.

A paper was read from Dr. Edmund Ravenel, of Charleston, South Carolina, in reference to some organic remains of Crustacea, &c., discovered by him in the fossiliferous beds to the west of that city, viz.:

"Description of two new species of Fossil Scutella, from South Carolina, by Edmund Ravenel, M. D.

"Scutella Caroliniana.—Specific character: nearly round; slightly convex above; posterior margin truncated; ambulacra short, elliptical, the two posterior slightly curved and nearly a third longer than the others; in a line with each there is an oblong perforation extending almost to the margin; between the two posterior ambulacra there is another perforation, longer than the others, and more central, at the extremity of which, beneath, near the mouth, is the vent. Mouth central; diameter about six inches.

Scutella macrophora.—Specific character: subovate thick; margin thick, truncated posteriorly; notched slightly opposite the anterior ambulacrum; more deeply, opposite the lateral, and still more so opposite to the posterior ambulacra. Ambulacra elliptical; the posterior pair long, and gracefully curved, so as to give room between them, for a very large irregular perforation, the margin of which is considerably raised, extending to the centre of the shell, giving the upper surface a remarkable elevation. The under surface is flat, rather hollow, particularly near the opening; mouth anterior to the centre; anus distant from the mouth one-fourth of the space from the mouth to the posterior margin.

Diameter of large specimens nearly four inches.

These fine fossils are found in a calcareous deposite upon my plantation on Cooper River, in St. Thomas's Parish, about 17 miles from Charleston.

The limestone is granular, and remarkably adapted to the purposes of calcareous manure.

In digging it out and spreading it on the fields, these fossils are found in considerable numbers; the S. macrophora is particularly abundant and perfect. The S. Caroliniana is also abundant, but from its size, and the number of openings in it, it is very easily broken, and is only obtained in fragments. I have only one perfect specimen, and that is not quite 2½ inches in diameter.

In examining these fossils in the light, the surface exhibits bright crystalline faces; the material of the shell seems to have become crystallized since the destruction of the animal matter.

It is perhaps remarkable that many of the crustaceous remains in this deposit are well preserved, while the shells proper are for the most part decomposed. A few specimens of two or three species of Pecten, of one or two Ostreæ, a Plicatula and a Balanus, are occasionally met with, while imperfect casts of numerous species are very common."

The calcareous deposit to which the preceding fossils belong, is the newest cretaceous formation of Dr. Morton, who first described its relative position and organic remains in his Synopsis, published in 1834. Dr. M. supposed these beds to be of the same age of the white chalk of Europe; they are based on the ferruginous sand strata in New Jersey, North and South Carolina, Alabama, &c.; and the two deposits contain a few fossils which are specifically the same. In fact, the Eocene or lower tertiary, also embraces some species of shells identical with those of the newer cretaceous; whence the latter beds, like those of the celebrated plateau of Maestricht, may prove, as Dr. Mantell has suggested, to be a link between the chalk and the tertiary beds, without being contemporaneous with either.

Mr. Quinby made some remarks on the mineral resources and physical geography of that portion of Peru which embraces the eastern ridges of the Andes.

He alluded to the treasures which were secreted by the Peruvians at the epoch of the Spanish invasion, and which have never yet been found, notwithstanding the continued search of the inhabitants. But the river Chucabamba possesses natural treasures of great value, for its sands are auriferous for several leagues above and below the temple of the sun. The inhabitants procure it by cutting the wool on sheep skins to half an inch in length, and then sinking them in the rapids, and at the base of the falls of the river, in which position the skins, with the woolly side up, are suffered to remain from six to twenty-four hours. They are then carefully removed from the water, and turned wool side down into a *batea* or tub of water; the gold is thus washed out, and is collected without further trouble.

Mr. Quinby adverted to the celebrated ruins of the Temple of the Sun at Huanuco viejo, (Tiaguanico*) the Cyclopean fortress,—the walls composed of enormous masses of square and oblong stones of marble, greenstone and greenstone-porphyry,—all which, with their bas reliefs and other ornaments, remain in a remarkable state of preservation. These ruins, as is well known, date beyond the dynasty of the Incas, to a people, however, of the same race, and probably of nearly similar political and religious institutions.

Mr. Quinby crossed and recrossed the Andes twenty-four times, at seven or eight different passes; twice from Naranjal, (on the gulf of Guayaquil, one degree and a half south of the equator,) to the city of Cuanca, the capital of the province of Assuay, a little south of Chimborazo; and having spent more than two weeks at the foot of the Peak of Raura, at least a thousand feet above the line of perpetual snow, he pronounces it the most sublime spot he has visited on the Andean range. Besides the Peak of Raura, which he believes to be at least as high as Chimborazo, there are innumerable smaller ones rising on the range of the Cordilleras, to the north and south, having their bases resting on perpetual snow, and throwing up their snow-clad apices into the pure and attenuated atmosphere, almost beyond the reach of the Condor itself.

The largest and nearest of these peaks is that of Nueva Potosi, the base of which approaches within one league of that of Raura; and the intervening space is occupied by the lake called also Neuva Potosi, the surface of which is about 500 feet above the lower limit of perpetual snow; and as this line within the tropics is not less than 15,500 feet above the level of the ocean, the lake must consequently have an elevation of 16,000 feet. The water of this lake makes its escape by a subterranean passage on the western slope of the Andes, and also gives rise to the river Haura, which reaches the Pacific at Huacho, the celebrated *salinas* of the southern hemisphere. Mr. Quinby also described the Lake of Raura, one league north of that of Potosi, and giving rise to one of the principal branches of the Amazon. Both of these lakes are the

* See page 36 of these Proceedings.

frequent receptacles of avalanches of ice and snow from the superjacent mountains, presenting the rumbling sound and tremulous sensation of an earthquake, and forcing vast bodies of water over the precipice to make their way by the courses of the Amazon to the Atlantic ocean, a distance of five thousand miles.

STATED MEETING, SEPTEMBER 21, 1841.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO CABINET.

Mr. Ashmead presented the following specimens for the geological collection:

Bowlder of secondary limestone, containing many beautifully preserved Cyrtoceræ, Orthoceræ, &c., found on the northern shore of Lake Ontario.

Asaphus Wetherellii, (Green.)

Platynotus Boltoni, (Conrad.)

Fucoides Harlani, (Conrad.)

Cariocrinus ornatus, (Say,) and the tail of Bumastus Barriensis, (Murchison,) the head of a Platynotus, and several varieties of Corallines.

Crystallized feldspar, from Rossie, New York.

A framed portrait of William Hembel, Esq., president of the Society, painted by Mr. John Neagle, was presented by the following members: Charles A. Poulson, Samuel George Morton, John P. Wetherill, William S. Vaux, George W. Carpenter, Thomas Fisher, Caspar W. Pennock, Alfred L. Elwyn, Henry F. Leib, Thomas Nuttall, Judah Dobson, Lardner Vanuxem, Robert Pearsall, Charles A. Poulson, Jr., Charles N. Baucker, Robert Bridges, James C. Booth, Paul B. Goddard, Joseph Carson, Thomas D. Mütter.

Mr. J. S. Phillips read the following paper on the Nomenclature of Natural Science.

The confusion in the nomenclature of Natural Science, owing to the number of synonymes with which it is burthened, makes it desirable that some fixed rule should prevail, by which naturalists might determine to whom to credit species, and what names shall have priority. With a view to call the attention of the Academy of Natural Sciences to the subject, I have thrown together some of the opinions and arguments urged by different parties, in the hope that eventually some different rule in nomenclature may be generally adopted.

In determining the right to names of species, the only two points worth noticing, are, which description was first read before a society; or, which was first printed and *published*.

Now, the arguments that occur to me in favour of priority of reading, are, that when the author has read his paper, and handed it over to the society before which he read it, he has done all in his power; that it is then taken out of his hands, and he has no control over the time when it is to be published; and, that, because his society, for whatever cause, delays the publication until another naturalist has published it, it would be unfair that the former should be deprived of the credit of his investigations, by circumstances over which he has no control, and that too, after having done all that was in his power.

Another reason urged in favour of the first read description is, that in referring to old descriptions, the date when the paper was read is precise—the day when read being always one of the meetings of the society, and printed in the journal or transactions with the date, and therefore absolutely determined; but the actual day of publication not always so readily ascertained. In answer to the first, it may be urged, that if merely reading a paper secures the species, it will produce indifference as to whether it is ever published or not; and naturalists in general will be at a loss to know what has been done in the case; while specimens will remain unlabelled and unknown, because no one is particularly interested in publication; but if priority of publication be the stand-

ard, other naturalists would not be long at a loss to know what has been done; and as the rest of the community interested are a vast majority, their convenience should have great weight in the matter. And when the meetings are not open to the public, the reading is still less a point to be depended upon, as the committee to whom the paper is referred might remain in it for months, and in some cases years, and in the meantime numerous species be added to the paper through the carelessness or connivance of the committee, a long time after it was read, and perhaps after another naturalist has published them; and thus if the first read be the rule, a great opportunity for trick and injustice be offered to the unscrupulous. And even when the meetings are public, the author might borrow the paper under pretext of verbal alteration or other excuse, and then interpolate additional species. The same objections in part hold good against the other argument in favour of the first read description: the correctness of the date of publication may be ascertained by all, but it is not so certain that the description of a species was read on a particular evening.

The arguments in favour of priority of publication are, among others, that it would be extremely unfair, that a man who has spent months or years in searching for species abroad, and then perhaps been at the expense of publishing them himself, should be deprived of his hard-earned credit, by some one who has merely read a paper of which the other could have no knowledge; while, if he had known that the Fauna or Flora of that district had been collected and described, he would have made his researches in another quarter.

Another reason is, that by making mere reading the standard, all who were not present at the time, or had access to the minutes of the society, might remain for a long time in ignorance; especially as a paper might not be recorded until reported on by the committee, who might retain it for years when the volume appeared at long intervals: even the members of the society who were absent when the paper was read, would remain at a loss to know whether any particular species were described or not. In this way the numerous specimens which are constantly scattered through various collections would remain a long time undescribed

and unknown; as the possessors would be always in doubt, whether some one else had not previously described them without publishing: and thus the keeping up with the state of any department of natural history would be impossible, as no one could know what was doing in more than one or two societies. In the case of societies holding their meetings with closed doors, the reasoning applies with still greater force, as none but the members of that society could have the chance of any knowledge of the matter.

There is also another reason for preferring priority of publication; that many naturalists are working away quietly, exploring sections of country around their places of residence, in remote and unfrequented parts, who have no access to public institutions, and whose only means of knowing what is done must be through the press.

The great number of synonymes with which natural science is burthened, is in great part owing to the want of a fixed rule in this matter; and it would seem that priority of publication would lessen the evil, more than the rule of having been first read; as several descriptions might be read within a short time of each other, in different places, by parties in ignorance of what is doing elsewhere; and then their various names be introduced into the nomenclature; but when once published, it is every one's business to know what has been described, as the opportunity is offered to every one to ascertain; and if a description be made in voluntary ignorance, it then could not stand.

And not among the least of the arguments in favour of priority of publication, is, that of the two parties in the case, the describer, and the public of naturalists who are to read the description, the latter, being an immense majority, would find priority of publication contribute greatly to the interest of science generally, in promoting early publication, and preventing confusion by synonymy; and to individual convenience, in enabling those who choose to keep close up with the state of any branch of natural history. Now, as the descriptions would not be written, if there were to be no readers, the latter being so important a party in the matter, may take upon themselves to decide what rule shall obtain in the premises.

While on the subject of the nomenclature of natural history, there is an evil which is growing so rapidly as to deserve notice.

That is, the custom when genera are subdivided, or species transposed from one genus to another, to credit the old species to the naturalist who constitutes the new, or even modifies the name of an old genus; thus depriving the original describer of his species, because it is associated with another series of species, or because the termination of its latin name be altered to suit the altered gender of the genus. In this way Linnæus has been robbed of a large portion of his labours; not by Lamarck, for he appears to have been superior to such littleness: but by later naturalists, who have credited the old species of Linnæus to Lamarck as an authority and precedent for their own innovations and appropriations. When fairly viewed, it can hardly fail to strike every disinterested mind, that the credit of the original description of a species should remain with the describer; he described the characters of a group, a species, and whether that species belongs to one or another genus, his description of its character must remain: indeed there is no show of any attempt to change such description; and if in the progress of science, new divisions of genera, or translations of species from one genus to another be found necessary; then credit the generic change to the constituter of the genus, and the species to its original describer: thus Planorbis Corneus, Lin. Lam. This, besides being strictly just to all parties, would have the effect of preventing useless and absurd modifications, by removing one of the chief incentives—the having the name of the innovator tacked to specific names.

MEETING FOR BUSINESS, SEPTEMBER 28, 1841.

DR. GODDARD in the Chair.

The Corresponding Secretary's report was read and adopted.

The committee on Mr. Haldeman's paper, "Description of

two new Freshwater Shells," reported in favour of publication.

The committee on Dr. Ravenel's "Description of two new fossil species of Scutella," reported in favour of publication.

The committee on Mr. Speakman's memoir on Light and Heat, reported in favour of depositing it in the library of the Academy.

The committee on Mr. Phillips's communication, read at the last meeting, on the claim to priority in the description of new species, submitted a report, which was ordered to be printed with the proceedings of this meeting.

The committee to whom was referred the consideration of the views and suggestions of Mr. Phillips concerning the rights of authors, and of the practice of changing original names to suit new made nomenclatures, having carefully examined these interesting and important matters, respectfully recommend the publication of Mr. Phillips communication in the bulletin of the proceedings of the Academy; and further, beg leave to submit to the Academy a few brief remarks:—

In the opinion of your committee, the establishment of well-defined and readily understood principles, as bases of nomenclature, especially as regards the priority of the rights of authors in the history of nature, is most essential; not only because it will have a direct tendency to stimulate labourers in science to profound investigation and research, and secure to them the harvest they may achieve, and thence facilitate the acquisition of precise knowledge to all; but it will likewise be eminently conservative of the integrity and reputation of science itself amongst us.

It appears to your committee to have been conclusively understood by many naturalists, from precedents established in scientific institutions both in Europe and in this country—by usage, if not by written law; that the date of a printed publication, accessible to all, to men of science as well as to others, announcing new discoveries, shall fix and determine the right of priority; and hence names and descriptions thus put forth, are entitled to, should

receive the sanction of, and be adopted throughout the scientific world.

In contradistinction to this, your committee are aware that there exists an opinion, that an author might claim precedence, from the time his discoveries were read before a scientific society, and without reference at all to the time of printing or general circulation. But this seems to your committee, a very uncertain and vague expedient, the source of perpetual embarrassment and confusion; and much of the retardation of the spread of knowledge may be attributed to this cause. Many societies issue their transactions through the press at long intervals, months, even years, elapse before their discoveries reach the public; thus, it seems to your committee, manifestly unjust, that other collaborators should await such tardy enunciations of scientific knowledge, and so hazard the loss of their labour, and that too, by acts, even farther removed from their control, than are the periods, or the means of publication of the transactions of such societies, from the influence of their own members.

Your committee deem it inexpedient at this time to extend their observations; enough, in their opinion, having been adduced to warrant their conclusion—that the most obvious and rational criterion by which to test the merits of conflicting claims to originality, is solely the printed and published testimony.

In relation to that portion of Mr. Phillips's communication which alludes to the modifications and changes in the designation of genera and species made in new nomenclatures, without assigning credit, where it is justly merited,—thus wresting from the naturalist the honour acquired by his oftentimes onerous and unrequited toil,—your committee trust, that the Academy of Natural Sciences of Philadelphia, will sustain them in an expression of decided disapprobation of a practice, so fraught with evil, doing injury alike to science and to its collaborators.

EDWARD HALLOWELL,
B. H. COATES,
C. A. POULSON.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. I. OCTOBER, 1841. No. 7.

STATED MEETING, OCTOBER 5, 1841.

VICE PRESIDENT WETHERILL in the Chair.

DONATIONS TO LIBRARY.

Horæ Entomologicæ: or Essays on the Annulose Animals. By W. S. Macleay, Esq., F. L. S. Vol. 1, parts 1 and 2. 8vo. London, 1821. From Dr. C. Pickering.

Monographia Ruborum Sueciæ. Edidit Joh. P. Arrhenius. 8vo. Upsalia, 1840. From the Author.

Histoire Physique, Politique et Naturelle de l'Isle de Cuba. Nos. 21, 22, 23, 24 and 25. Par Don Ramon de la Sagra. Folio. Paris, 1841. From certain members.

Antiquedades Peruanas. Parte Primera. Par Mariano Eduardo de Rivero. 4to. Lima, 1841. From the Author.

Annales des Mines. 8vo. Levraisons 4, 5, and 6, of Vol. XVIII. Paris, 1840. From the Editor.

Memoire sur les Foramènifères de la Craie du Bassin de Paris. Par M. Alcide D'Orbigny. 4to. Paris, 1841. From the Author.

Amphibia Europæa ad Systema Nostrum Vertebratorum Ordinata. Auctore Carolo L. Bonaparte. 4to. 1841. From the Author.

Lamarck's Genera of Shells, with a Catalogue of Species. Translated from the French by A. A. Gould, M. D. 12mo. Boston, 1833. From Mr. S. S. Haldeman.

New Species of Shells, published October 5, 1841. By S. S. Haldeman. 8vo. From the Author.

Remarks on the Abracadabra, or Dr. Hahnemann's Homœopathic Medicines. By William Leo Wolf, M. D. 8vo. New York, 1841. From some Physicians of Philadelphia.

WRITTEN COMMUNICATIONS.—Dr. Morton read a letter addressed to him by the Rev. John Bachman, of Charleston, South Carolina, accompanying a communication on the Fauna of North America, which was submitted to the Society for publication, viz:

"Descriptions of New Species of Quadrupeds inhabiting North America. By J. J. Audubon and J. Bachman.

VESPERTILIO *monticola*. Mountain Bat.

V. Vespertilione subulata brevior; auriculis brevioribus; tragis non excedentibus dimidiam longitudinem auriculæ; colore fulvo.

Mountain Bat. Smaller than Say's Bat, (V. subulatus;) ears shorter: tragus less than half the length of the ear; colour yellowish brown.

Upper fore-teeth bilobate, ears moderate, naked, erect, rather broad at base; tragus linear, subulate, body small; wings long; tail projecting, a line beyond the interfemoral membrane, which is slightly sprinkled with hair above and beneath.

Colour. The nose and chin are black; ears, light brown; wing membranes, dark brown. The whole of the fur of the body, above and beneath, is from the roots of an uniform yellowish-brown colour.

This species differs from Say's Bat, not only in colour, but in its much shorter ears and tragus. The size and shape of the tragus, we have found an infallible guide in our American Bats; the ears of the present species, when alive, are always erect, whilst those of Say's Bat are folded backwards like those of the long eared Bats—Plecotus.

Dentition: Incis. $\frac{2-2}{6}$, Canines, $\frac{1-1}{1-1}$.

Length of head and body,	1 inch	8	lines.
" tail,	1 "	6	"
" spread,	8 inches	0	"
Height of ear, posteriorly,		3	"
" tragus		2	"

N. B. The tragus in Say's Bat is 4½ lines in height. Several specimens of this Bat were obtained during summer, on the mountains of Virginia, at the Grey Sulphur Springs. They were very uniform in size and colour.

VESPERTILIO *Virginianus*. Virginian Bat.

V. (Virginianus) vespertilione monticulâ paululum longior, auriculis paululum longioribus magisque acutis; dentibus primoribus maxillæ superioris simplicibus; interfemorali membranâ nudâ; corpore supra fuligineo-fusco; subtus cinereo fuscato.

Virginian Bat.—A little larger than the Mountain Bat; ears a little longer and more pointed; upper fore teeth simple; interfemoral membrane naked; sooty, brown above, ash brown beneath.

Dental formula, incisors, $\frac{2-2}{6}$, Canines, $\frac{1-1}{1-1}$.

In size, this species is intermediate between Vespertilio Carolinensis, and V. subulatus. The ear is naked, less rounded, and more pointed than either of the other closely-allied species The tragus is very narrow, linear, and less than half the length of the ear. The tail is enclosed in the interfemoral membrane, except the penultimate joint, which is free. The anterior upper fore teeth, instead of being sub-simple, as in the (V. Carolinensis) or bilobate, as in Ves. subulatus and Ves. montanus, are simple.

Colour.—The nose, upper lip and under-jaw are black; wings dark brown. The back is sooty brown; on each shoulder, at the insertion of the wing, there is a circular black spot about four lines in diameter; on the under surface, cinereous brown.

Dimensions—

Length of head and body,	2 inch.	5	lines.
Do. tail,	1 "	0	"
Spread,	8 "	8	"
Height of ear, posteriorly,		4	"
Do. tragus,		1¾	"

Habitat. Mountains of Virginia.

Remarks.—Say's Bat (Ves. subulatus) has been several times described. It was first observed by Say, at the head waters of the Arkansas, within sight of the Rocky Mountains. It was subsequently described by Richardson, who obtained it at the Saskatchewan It was given by Le Conte, in McMurtrie's translation of Cuvier, under the name of Ves. Lucifugus. Professor Green, in Doughty's Cabinet of Natural History, (vol. 2, fig. 270,) gave a correct description of it under the name of Ves. domesticus. He, however, erred in arranging it in the preface of his descriptions, under Rafinesque's genus Nycticejus, to which it does not belong. The last notice of it is found in Cooper's Monograph of Vespertilio, in the New York Lyceum of Natural History. This species has a very extensive range. We obtained it in the widely separated localities of Carolina and Labrador, during summer. The Ves. Carolinensis is found in autumn, winter and spring, in Carolina; but appears to migrate northwardly in summer, and is at that season common in the State of New York. The Ves. monticola and Ves. Virginianus have not been met in Carolina or Georgia, and appear to be Northern or Alpine species, and no doubt exist in the Northern States. The Ves. Carolinensis may be easily distinguished from the other closely-allied species, by the large size of the first upper incisor; the second which succeeds it being so minute as to require the aid of a good magnifier to detect it.

The genera of Bats have within the last few years been greatly multiplied, in order to include the vast number of new species which have been accu-

mulating in European museums. The last revision we have seen was by Gray, of the British Museum, who has divided the bats into forty-eight genera. The two species here described, belong to the genus Vespertilio, as now restricted. It is characterised by having four incisors in the upper jaw, in pairs on each side, near the canines, with a large, unoccupied space between them. The only species as yet described in the United States, that can be referred to this genus, are Ves. Carolinensis, Ves. noctivagans, Ves. subulatus, Ves. monticola and Ves. Virginianus.

The existence of a Brown Weasel in America, which does not become white in winter, has been doubted by some naturalists; and by others, the species has been regarded as the Mustela vulgaris of Europe. Dr. Harlan, (Fauna Americana, p. 61,) under the name of Mustela vulgaris, does not appear to have described an American species. His description appears intended for the common Weasel of Europe, which we think does not exist in America. Dr. Godman, after giving figures of the Ermine, both in winter and summer colours, considered the latter as the species improperly referred to Mustela vulgaris of Europe; and in accordance with the views of Charles L. Buonaparte, the Ermine was regarded as the only species of American Weasel. Dr. Richardson, (Fauna Boreali Americana,) under the name of Mustela (Putorius) vulgaris, has described from specimens obtained by Captain Bayfield on the borders of Lake Superior, and also from others procured by himself at Carleton House, which he regarded as agreeing in all respects with the European species. He concludes, by stating, that this species, like the Ermine, "becomes white in winter." We had an opportunity, in the Museum of the Zoological Society of London, of examining the specimens referred to by Dr. Richardson, and of comparing them with Mustela vulgaris, and were satisfied that the species were distinct; yet, unless he was in error in stating that the American species became white in winter, we are not certain that the species we are about to describe is identical with the specimens he referred to.

MUSTELA *fusca*.—American Brown Weasel.

M. (fusca). Corpore inter Mustelam erminiam et Mustelam vulgarem intermedio; caudâ illius breviore, sed hujus longiore; apice nigro; vellere supra fusco; subtus albo.

American Brown Weasel.—Intermediate in size between Mustela erminia and Mustela vulgaris; tail shorter than the former, but longer than the latter, with the extremity black; brown above, white beneath.

The body is long and slender, but far more robust than that of Mustela vulgaris; the feet especially appear one-third larger, and more thickly clothed with fur, which completely covers the nails. The ear is a little longer, and more pointed, than that of either the Ermine or common Weasel. The white on the lower surface is not mixed with brown hairs, as in the Mustela vulgaris, and not only occupies a broader space on the belly, but extends along the inner surface of the thighs as low as the tarsus, whilst in the Mustela vulgaris, the white scarcely reaches the thighs.

Colour.—The whole of the upper surface, to within three-fourths of an inch of the tail, is of an uniform dark fawn colour. On the upper surface of the tail, the hair is darker brown than the back, and its extremity is for an inch nearly as black as that of the Ermine. In writing this description, we have several specimens of the European Mustela vulgaris before us; and the ends of the tails in that species are uniformly brown, with here and there a black hair interspersed. Although the hair of the present species, at the extremity of the tail, is black, like that of the Ermine, yet these hairs are short and soft, and more like fur, and do not present the long and coarse appearance of that of the former species. The whole of the under surface is pure white; this colour does not commence on the upper lip, as in the Ermine, but on the chin, extending around the sides of the mouth, and by a well-defined line, along the neck, inner

parts of the fore legs, the sides and the thighs, and tapering off to a point at the tarsus. The white on the lower surface is not mixed with brown hairs, as in the Mustela vulgaris, but extends lower down on the legs. Of the colour of this species, in winter, we cannot speak with positive certainty, but feel pretty confident that it is the same as in summer, and that it does not (at least in the latitude of New York) become white in winter. We, many years ago, kept several young Ermines in confinement, as well as one of this species. The Ermines all became white in winter, although some of them were not fully grown; the present species underwent no change in colour, but remained brown during the whole winter. On another occasion, a specimen of a brown Weasel was brought to us in the month of December, which had been caught in a trap. At that season, the Ermines are uniformly white. A Weasel exists in the Southern States, and is found as far south as the upper parts of South Carolina and Georgia. It has always been represented to us as never becoming white in winter; and although we possess no specimens at present, we are inclined to regard it as this species.

Dimensions of specimens before us, of the three species referred to above:

	Mustela erminia.		M. vulgaris.		M. fusca.	
	inch.	lines.	inch.	lines.	inch.	lines.
Length of head and body,	11	7	7	0	9	0
Tail vertebræ,	4	6	1	9	2	9
Including fur,	6	2	2	1	3	2
Height of ear, posteriorly,	0	2½	0	2	0	3

The specimen of the American Brown Weasel, described above, was obtained at Long Island, in the month of May.

We subjoin a description of another species of Mustela, which, although recently made known to naturalists by Dr. Lichtenstein, of Berlin, who received his specimens from the vicinity of the city of Mexico, was not hitherto known to exist as far north as the locality from which we obtained it. We agree with Swainson, Lichtenstein, Dr. Richardson, and the most eminent European naturalists, that America divides itself into three natural zoological boundaries: the first including our whole country from the farthest north, to the tropic of Cancer, where the tropical forms commence, to be called North America; the second, including the Tropics, called Central or Tropical America; the third, South America, including all that region lying south of 33½ south latitude. The southern points of Florida and California will, in this case, be the southern boundary of our North American Fauna. Our specimen was received from North California about latitude 40°.

Mustela frenata. (Licht.) Bridled Weasel.

Mustela frenata. Licht. Darstellung neur oder wenig bekaunter saugthiere von Dr. Lichenstein. Berlin, 1827—1834.

M. (Frenata.) Vellere supra fulvo; subtus albo-flavo; capite maculâ consperso; fronte fasciâ circumdatâ; gutture albo.

Bridled Weasel.—Size of Mustela erminia; colour, fawn above, yellowish white beneath; ears and nose dark brown; a spot on the head, a band above the eyes, and the throat white.

Form.—In shape, this species bears a strong resemblance to that of the Ermine. It appears to be somewhat shorter. The toes and nails are more thinly clothed with fur; the ears are narrower and longer.

Colour.—The nose, sides of the face to above the eyes, and the ears are dark brown: end of the tail black; a small spot on the head, between the ears; the forehead, a broad line extending beneath the ears; the chin and the throat white. The whole upper surface is a light fawn colour; beneath, yellowish white.

Dimensions—

Length of the head and body,	11	inch.	6	lines.
Do. tail,	5	"	6	"
Do. to the end of hair,	6	"	4	"
Height of ear, posteriorly,	0	"	4	"

ARVICOLA *fulva*. Glossy Arvicola.

A. (fulva.) Corpore longo ac tenui; naso acuto; auriculis et pedibus longis; velleri tereti ac nitente; supra fusca; subtus cano-fusco.

Glossy Arvicola.—Body long and slender, nose sharp, ears and legs long, fur smooth and lustrous; dark brown above, hoary brown beneath.

Form.—This species presents more distinctive markings than any of our American Arvicola; its body is less cylindrical, and its nose less obtuse than any of our other species; its ears are prominent, rising two lines above its smooth, compact fur; its lower incisors are very long, and much exposed and considerably curved; tail longer than the head, thinly covered with short hairs; legs long and slender, giving the whole animal that appearance of lightness and agility observable in the Mouse.

Colour.—Incisors, yellowish-white. The hairs, which are very short, like those on the Pine Mouse of Le Conte, are at the roots on the upper surface, plumbeous, broadly tipped with brown, giving it a bright chestnut-brown colour; the hairs, on the legs and toes, are a little lighter; on the under surface, the colour is cinereous.

Dimensions—

Length of the head and body,	3	inch.	9 lines.
Do. tail,	1	"	4 "
Height of ear, posteriorly,	0	"	2½ "
Length of tarsus,	0	"	7 "

The specimen was obtained in one of the South-western States; we believe Illinois.

ARVICOLA *nasuta*. Sharp-nosed Arvicola.

A. (nasuta.) Arvicola Pennsylvanica longior; caudâ capite breviore; pedibus tenuibus; calce brevissima; corpore supra ferrugineo-fusco; subtus ex cinereo et flavo variegato.

Sharp-nosed Arvicola.—Larger than Arvicola Pennsylvanica; tail shorter than the head; legs small, slender; heel very short; the body, above, dark, rusty brown; a soiled yellowish grey beneath.

The head of this species is rather long, and the nose sharper than the Arvicola in general. The lower incisors are long, and very much curved. The body is less cylindrical than Wilson's Meadow-mouse; the ears are circular, sparingly hairy within and well covered with fur exteriorly; whiskers shorter than the head; tail thinly clothed with hair.

Extremities.—Legs covered with short hairs. The fore feet have naked palms; claws small. The tarsus is more than a third shorter than that of the much-smaller Arvicola Pennsylvanica; the fur on the back is also shorter.

Colour.—Incisors yellowish-white; the fur, from the roots to near the tips, is greyish-black; the tips are yellowish-brown and black; giving it a rusty-brown appearance. The legs and tail are light brown; the chin a soiled white; the fur on the under surface of the body, is dark-cinereous to the tips, where it is light-coloured.

Dimensions—

Length of head and body,	5	inch.	9 lines.
Do. head,	1	"	10 "
Do. tail,	1	"	2 "
From heel to point of nail,	0	"	6 "

For the sake of convenient comparison, we give the dimensions of the largest of six specimens before us, of

Arvicola Pennsylvanica—

Length of head and body,	4	inch.	2 lines.
Do. head,	1	"	4 "
Do. tail,	1	"	6 "
From heel to point of longest nail,	11	"	

We are not certain that this species may not have been indicated, al-

though not described, by Rafinesque, in the American Monthly Magazine, under the name of Lemmus Noveboracensis. His descriptions, however, in every department of natural history, are so short, vague and imperfect, that it is impossible to identify his species with any degree of certainty. They have created such confusion in the nomenclature, that nearly all European and American naturalists have ceased to quote him as authority. Dr. Richardson has, moreover, described an Arvicola from the Rocky Mountains, which he has referred to the Noveboracensis of Rafinesque, which differs widely from the above species.

Habitat. The specimen which we have described was obtained by Dr. Brewer, near Boston. We received another from Mr. John W. Audubon, who procured it at the Falls of Niagara. We have also frequently found it in the northern parts of New York, where the Arvicola Pennsylvanica also exists. It appears, however, not to be found as far to the south as the latter species, as we have sought for it in vain in Pennsylvania.

ARVICOLA *scalopsoides*. Mole Arvicola.

A. (Scalopsoides.) Capite crasso; naso obtuso; vellere curto, molli, bombycino instar velleri Talpæ; supra albo-fusco; subtus plumbeous.

Head large, nose blunt, fur short, soft, silky and lustrous, like that of the Mole. Colour, above, light brown; beneath, plumbeous.

This species, of which we have obtained many specimens from Long Island, and which is not rare in the vicinity of New York, is very distinct from Wilson's Meadow Mouse. His diminutive figure in the 6th vol of his Ornithology, is not very unlike this animal; but his descriptions, both of form and habits, which apply very correctly to Arvicola Pennsylvanica, have no reference to the present species.

The head is thicker and much shorter than that of Wilson's Meadow Mouse; the body cylindrical; ears scarcely rising above the integument, and completely concealed by the fur. The legs and tail are short; the latter not as long as the head, and both are covered with very fine and short hairs. The fur on the back, which is soft and fine, and not half the length of Wilson's Meadow Mouse, has none of the coarse hairs which are found in that species. On the under surface, the fur is very short, not more than a line in length.

Colour.—The teeth are yellowish white; the fur on the back is, from the roots, dark plumbeous, tipt with light ashy-brown. This colour continues uniform till it reaches the sides, where there is a distinct line of demarcation, commencing at the chin and running along the neck and sides of the thighs. The whole of this under-surface is of a light cinereous colour, the hair being plumbeous at base, and so lightly tipt with white as to appear in some parts spotted with dark blue and ashy white.

This species bears a strong resemblance to the Pine Mouse of Le Conte (Psamomys Pinetorum,) which is also an Arvicola, than to any other. It is, however, larger, differs considerably in colour, and is destitute of the chestnut brown on the cheeks, which are the characteristic marks of that species.

Length of the head and body,	4 inch.	0 lines.
Do. tail,	0 "	10 "
Do. head,	1 "	0 "
From heel to point of nails,	0 "	7 "

MUS *humulis*. (Bachman.) Little Harvest Mouse. Read before the Academy of Natural Sciences, 1837. Vide Jour. Acad. vol. vii.

Mus humulis. Corpore supra rutilo-cinereo et quoad baccas et lineam in utrisque lateribus ferrugineo: subtus flavo-albente.

Little Harvest Mouse.

Reddish gray above; cheeks, and line along the side, light ferruginous.

Incisors, $\frac{2}{2}$ Canines, $\frac{00}{00}$ Molars, $\frac{3-3}{3-3}$ } 16 Teeth.

Form.—Size about a third smaller than the house mouse. Head rather broad; eyes moderate, placed much forward; nose much pointed; ears broad, extending a little beyond the hair, slightly furred without and along the edges on the inner surface; legs short; whiskers reaching to the ears; tail a little shorter than the body, flattened on the sides, rounded above and beneath, covered with a thin coat of very short hairs. Legs clothed with soft hairs lying close and smooth. The fore feet have naked palms, and four toes with a callous skin, protected by a very minute nail in place of a thumb. The outer toe considerably shorter than the inner, the two middle ones are nearly equal, the claws are slightly hooked; soles of the hind feet naked.

Colour.—Teeth yellow. Fur on the back plumbeous at the roots and tinged with black and reddish gray at the tips; cheeks, and a line along the sides, light ferruginous. Under parts very light buff. Tail brownish drab above, a little lighter beneath, nails white; eyes black.

This little quadruped, the smallest of the genus at present known in our country, has been obtained in several localities in South Carolina, and appears to be sparingly diffused throughout the whole State, except in the mountainous districts. It is occasionally found in the vicinity of Charleston, generally in grassy and shrubby fields, especially in the waste lands covered with the brome grass (Andropogon dipitiflorus,) of this country, as also in the fields of crab grass, (Digitaria sanguinalis.) I have occasionally found its nest among the long grass on the surface of the earth formed of the withered blades of various species of grasses, sometimes containing a small store of the seeds of the several species of Paspalum, Digitaria and Panicum, especially of the Panicum Italicum. The specimen from which this description was taken, was a little the largest of a great number that I have at different times examined. It was a female, procured on the 10th of December, containing four young in its matrix. I presume, therefore, that they produce their young throughout a great portion of the year, and are very prolific. One which I kept in confinement for several months, refused animal food of every kind, and fed only on grains.

Dimensions—

Length of the head and body,	2	inches,	9 lines.
Length of tail, -	2	"	4 "
Height of ear, -			3 "

Mus (Calomys) *aureolus*. Orange Coloured Mouse.

Mus (aureolus) Auriculis longis; caudâ corpore curtiore; corpore supra aureo; subtus flavo-albente.

Mouse with long ears; tail shorter than the body; bright orange coloured above, light buff beneath.

Form.—This species bears a general resemblance in form to the white-footed mouse. (Mus leuocpus.) It is, however, a little larger, and its ears rather shorter. Head long, nose sharp, whiskers extending beyond the ears. Fur very soft and lustrous. The legs, feet and heel clothed with short, closely adpressed hairs, which extend beyond the nails. Ears thinly covered with hair, which does not entirely conceal the colour of the skin. Mammæ four, situated far back.

Colour.—The head, ears, and whole upper surface is of a bright orange colour; the fur being for three-fourths of its length from the roots, dark plumbeous. Whiskers nearly all black, with a few white hairs interspersed; tail above and beneath dark brown. On the under parts, the throat, breast, and inner surface of the forelegs are white; the belly light buff. There are no very distinct lines of separation between these colours.

Dimensions—

Length of head and body,	4	inch.	3	lines.
Length of tail,	3	"	1	"
Length of head,	1	"	3	"
Length of ear posteriorly,			3	"
Tarsus including nail,			9	"

In symmetry of form and brightness of colour, this is the prettiest species of Mus inhabiting our country. It is at the same time a great climber. We have only observed it in a state of nature in three instances, in the oak forests of South Carolina. It ran up the tall trees with great agility, and on one occasion concealed itself in a hole, (which apparently contained its nest,) at least thirty feet from the ground. The specimen we have described was shot from the extreme branches of an oak in the dusk of the evening where it was busily engaged among the acorns. It is a rare species in Carolina, but appears to be more common in Georgia, as we received from Maj. Le Conte, three specimens obtained in the latter State.

Note.—We have arranged this species under the sub-genus of Mr. Waterhouse, proposed in the Zoological Society of London, Feb. 17th, 1837. (See Transactions.) It is thus characterized. "Subgenus Calomys (from Καλος beautiful, and Mus.) Fur moderate, soft. Tarsus almost entirely clothed beneath with hair. Front molar with three indentations of enamel on the inner side, and two on the outer; and the last molar with one on each side. The type, Mus (calomys.) bimaculatus. Two other species have been described from South America. Mus (calomys) elegans and gracilipes."

ARCTOMYS *flaviventer* Yellow-bellied Marmot.

Arctomys (flaviventer.) Corpore supra flaveo subalbicante et nigro; capitis apice maximum in partem nigro; corpore subtus flavo aureo; baccis flavis, quoad nasi orbiculum, labia et mentum albo; pedibus fuscis; caudâ ex atro fuscâ. Pilis omnibus ex fusco-flavo marginatis.

Yellow bellied Marmot.

Upper parts, grizzled yellowish white and black; crown of the head chiefly black; under parts, deep yellow; sides of the muzzle, yellow; point of the nose, tips and chin, white; feet, brownish yellow; tail blackish-brown, all of the hair tipt with brownish yellow.

The fur on the back is greyish-black at the base; on each hair there is then a considerable space occupied by dirty yellowish-white, which is gradually shaded towards the apex through brown into black; tips of the hairs yellowish-white; hairs of the belly, greyish-black at the base; hairs of feet, many of them blackish at base; cheeks, grizzled black and white; the former colour prevailing: a rusty brown patch on the throat, borders the white hairs of the chin; whiskers moderate black; feet entirely naked beneath.

This species is closely allied to the Arctomys empetra, which exists in the northern part of our continent; but the feet are yellow, instead of black, as in that animal; and the belly is yellow, instead of deep rusty-red; and the colouring of the hairs on the back consists of yellowish-white and black, instead of rusty brown, black and white. The head is narrower, the toes are smaller, and claws only half the length of the Arctomys empetra.

Dimensions—

From point of nose to root of tail,	16	inch.	0	lines.
Tail to end of fur,	6	"	10	"
Heel to point of nail,	2	"	6½	"
Height of ear, posteriorly,	0	"	6½	"
Point of nose to ear,	3	"	0	"

We detected this specimen in the collection brought by the late David Douglass, and, by permission of the Zoological Society of London, were enabled to describe it. It was brought from the mountains between Texas and California, and is marked in their printed catalogue of 1839, Arctomys flaviventer, No. 459, Bachman's MSS.

SCIURUS *lanigerus*. Woolly Squirrel.

Sc. lanigerus. Pilis longis et lanosis; caudâ crapâ, villosa vixque distichâ; naso, auriculis et pedibus pene nigris; vellere supra ex cinereo fusco sub albicante; subtus, ex albo fusco.

Woolly Squirrel.

Hair long and woolly; tail, large and bushy, scarcely distichous; nose, ears and feet, nearly black; upper surface, grizzled dark grey and brown; under parts, pale brown.

Form.—In size, this species is little less than the Fox squirrel, (Sciurus capitratus.) The ears, in the two specimens which are before us, are decumbent at the ends, as if the animal, in a living state, did not carry them erect, as is the case with the squirrels generally; head short, ears large, thickly clothed on both surfaces with short hairs; feet and toes hairy to the extremity of the nails.

Colour.—The incisors are dark orange on the outer surface. The whole head, both on the upper and lower surface extending to the neck—the ears, a spot behind the auricle, fore legs to the shoulders, and hind feet to above the heel, black, with a few greyish-brown hairs intermixed. The long fur on the back is, for half the length, light plumbeous, then a line of light brown, and tipt with white and black. The hairs on the tail, in which the annulations are very obscure, are, for one-third of their length, brownish-black, then light brown, then brownish-black, and tipt with ashy white. On the under surface, the hairs, which are short, are at the base light plumbeous, tipt with light brown and black; the throat is light greyish-brown.

The two specimens, which in other respects were very similar, differ a little in the colour of the head; one being lighter coloured, the head being dark greyish-brown.

Dimensions—

Length of head and body,	11	inch.	11	lines.
Do. tail to end of hair,	11	"	0	"
Height of ear, posteriorly, including fur,	0	"	8	"
From heel to end of middle claw,	2	"	6	"

The specimens were obtained from the northern parts of California; and, from their long, woolly hair, have an appearance of coming from a cold, mountainous region.

SCIURUS *mustelinus*. Weasel Squirrel.

S. (mustelinus.) Cervice longissima; caudâ corpore longiore; pilis curtis, rigidis, compressis, teretibus; omni corporis parte nigerrima.

Neck very long; tail longer than the body; hair short, rigid, adpressed, glossy; the whole body jet black.

Form.—The usually long neck of this species, together with its long and slender body, and smooth, lustrous hair, give it the appearance of some species of weasel, which has suggested to us the specific name. The ears, which are of moderate size, are nearly naked, there being only a few hairs on the borders; feet covered with very short hairs, which only reach to the roots of the nails. The tail, which is long, but not bushy, is moderately distichous.

Colour.—The hairs, in every part of the body, are from the roots to the extremities, of an intense glossy black.

Dimensions—

Length of the head and body,	10	inch.	0	lines.
Do. tail,	13	"	0	"
From shoulder to point of nose,	3	"	10	"
Tarsus,	2	"	5	"
Height of ear, posteriorly,	0	"	6	"

The specimen was received from California, and has the appearance, from its thin covering of hair, nearly destitute of the soft fur usually found in the squirrel, of being a native of a warm climate.

Remarks.—This species differs widely from all the other varieties and species of Black Squirrel in our country. It is destitute of the white nose and ears of Sc. capistratus; it has shorter and coarser hair than Sc. niger, with none of the white tufts invariably found in that species; and has a smaller body, although a much longer tail, than Sc. Audubooi, with none of the white, yellow and brown annulations in the hair, which characterize that species.

SCIURUS *ferruginiventris*. Rust-bellied Squirrel.

S. (ferruginiventris.) Vellere supra ex albo-cinereo vario, subtus rufo; armis fuscis.

Rust-bellied Squirrel.

Light grey above, reddish-brown on the shoulders; beneath, bright rufous.

Form.—This species, which is a little smaller than the Carolina Grey Squirrel, possesses great symmetry of form, and, in shape, resembles the latter species. The ears on both surfaces are thinly clothed with hair; tail longer than the body.

Colour.—Teeth yellow; nails brown; point of nose and whiskers, black; ears, on the outer edges, tinged with brown; within, grey; behind the ears, on the neck, a line of soiled white. On the upper surface, the head, neck, back and tail are light grey, formed by hairs which are light plumbeous, from the roots to near the tips, where they have white and black annulations; from the outer surface of the fore legs, there is a reddish-brown wash, which extends over the shoulders, and nearly meets on the back gradually fading into the colours of the back and neck. The hairs of the tail are black at the roots, then yellowish, then a broad line of black, tipt with white. The feet, on the upper surface, are grizzled with white and black. The sides of the face and chin are light grey. The whole of the remainder of the under surface of the body, including a line around the eyes, the throat and inner surface of the legs, is of an uniform bright rufous colour.

Dimensions—

Length of head and body,	8	inch.	10	lines,
Do. tail,	10	"	0	"
Height of ear, posteriorly,	0	"	5	"
Length of tarsus.	2	"	5	"

Habitat. California.

SCIURUS *leporinus*. Hare-like Squirrel.

S. (leporinus.) Caudâ crapâ maximeque distichâ; vellere supra ex cinereo-fusca; subtus albo.

Tail broad, and very distichous; dark greyish-brown above, white beneath.

Form.—Intermediate in size between Sc. cinereous and Sc. leucotis; ears moderate, thinly covered with very short hairs on both surfaces; tail longer than the body.

Colour.—Teeth orange; whiskers black; nose dark brown; ears light brown. Above the ears, a tuft of soft, cottony-like fur. The hairs on the back, which are short, are cinereous at the roots, then light brown, tipt with brown and black, giving it so much the colour of the English Hare, that we concluded to borrow from it our specific name. On the sides, the

colour is a shade lighter than on the back. The tail, which from the broad white tips of the hair has a white appearance, is brown at the roots, and three times annulated with black. The upper lips, chin, neck and under-surface, including the inner surface of the legs, white; the hair being of this colour from the roots; feet, a soiled yellowish white. On the outer surface of the hind leg, above the heel, a small portion of the fur is brown. There is also a spot of the same colour on the upper surface of the hind foot.

Dimensions—

Length of the head and body,	11	inch.	11	lines.
Do. tail,	12	"	6	"
Height of ear,			9	"
Heel, to end of middle claw,	2	"	9	"
Breadth of tail, with hairs extended,	5	"	6	"

This species, in its general appearance, so much resembles some varieties of the Sc. cinereous and Sc. leucotis, that, had it not been for its distant western locality, we should at first have been tempted to set it down, without further examination, as one or other of those species. There can, however, be no doubt, from its differing in so many details of colour, of its being distinct from either.

Habitat. Northern parts of California.

SCIURUS *molli-pilosus*. Soft-haired Squirrel.

S. molli-pilosus. Caudâ corpore curtiore; dorso fusca; lateribus et colli partibus rufis; abdomine cinereo.

Soft-haired Squirrel.

Tail shorter than the body; back dark brown; sides of the neck and flanks rufous; under surface, cinereous.

Form.—This species is a little larger than Sciurus Hudsonicus, with which we have compared it; its legs especially are considerably longer and more robust; the fur is much softer, the hair longer and less glossy than that of the former species.

Colour.—The teeth are yellow; the upper parts, including the nose, ears and outer surface of the legs and upper surface of the tail, are dark brown. This colour is formed by the hairs being plumbeous at the roots, tipt with light brown and black. On the sides of the neck, the shoulder and near the thighs, the colour is reddish brown. The tail, which is not very distichous, is brown, twice annulated with black; a few of the hairs are tipt with grey. On the under surface, the lips, cheeks and chin are greyish-brown; the inner surface of the fore legs, the throat and abdomen cinereous, lightly tinged in some places with rufous.

This species differs so widely in all its details, from Sc. Hudsonicus, that it is scarcely necessary to point out their distinctive marks of difference. The space occupied by the lighter colours on the under surface is much narrower than in the former species, nor is there, as in that species, any black line of separation between the colours of the back and under surface.

Length of body,	8	inch.	6	lines.
Do. tail to end of hair,	7	"	0	"
Height of ear,	0	"	5	"
Tarsus,	2	"	1	"

Habitat. Northern parts of California.

SCIURUS *occidentalis*. Western Squirrel.

S. (occidentalis.) Vellere longo ac molli; auriculis aretis; caudâ corpore longiore, quoad caput, fasciam dorsalem et caudam nigro; lateribus furvis; abdomine fusco.

Western Squirrel.

Fur long and soft; ears narrow; tail longer than the body; head, dorsal line and tail, black; beneath, dark rusty brown.

In size, this species is a little larger than the Northern Grey Squirrel, (Sc. leucotis,) and may be compared with the black variety of that species. The ears, which are elliptical in shape and narrower than in most of our species, are thickly clothed with soft, fine hair on both surfaces. The tail is very long, and, instead of being distichous, as in most of the species, is in the prepared specimen perfectly round. The feet are clothed with hair, partially concealing the nails. The hair is longer, more diffuse, but not softer than that of Sc. leucotis.

Colour.—The head, ears, upper surface of the legs, tail, and a broad dorsal line, black. On the sides, the hair is plumbeous at the roots, then a line of brown slightly tipt with black. On the under surface, this species is dark brownish black, from the lips to nearly the extent of the jaws. On the throat, inner surface of the legs, and whole under parts of the body, there is a mixture of black and brown fur, giving it a dark, rusty-brown colour. There are no annulations in the hairs of the tail.

Dimensions—

Length of the head and body,	11	inch.	0	lines.
tail to the end of hair,	14	"	0	"
Height of ear,	0	"	8	"
Heel to the end of nail,	2	"	9	"

When old father Linnæus comprehended the whole of his description of an American Squirrel in the single word, niger, he was not aware of the number of species of Black squirrels which should yet be detected in our western world, and the perplexity it would give to his successors in deciding on the species to which he referred.

There are now no less than eight North American squirrels, which are either permanently, or in some of their varieties, black.

The present cannot, however, be identified with any of our known species. It approached nearest to the black variety of the Northern Grey Squirrel, but is sufficiently distinct from that to entitle it to another name. The species in the Atlantic States have, moreover, never been found west of the Rocky Mountains, nor, indeed, have any but the Fox squirrel (Sc. capistratus) been observed to the west of the Mississippi river.

Fuller descriptions, with an account of habits, accompanied by good figures of the above species, will be given in a work on the North American Quadrupeds, now preparing for publication.

Mr. Haldeman submitted the following "Description of a new species of fresh water Shell."

Cyclas (pisidium) dentata.—Shell ovate, olivaceous, inflated, umbones elevated; medial and lamellar teeth well developed. Length 0.5; height 0.4 inch. Hab. Oregon: Mr. Nuttall.

Bears considerable resemblance to C. similis, from which it may be distinguished by the more elevated beaks.

N. B.—Pisidium abruptum (p. 53,) is not distinct from P. dubium, Say.

VERBAL COMMUNICATIONS.—Mr. Haldeman called the attention of the Academy to several specimens of Unio of various colours, principally green and brown, the former being referable to U. viridis of Rafinesque, the latter to U. Tappanianus, of Lea.

Mr. H. contends that they are identical, because they pass into each other, both as regards colour and the peculiarities of the cardinal teeth, which are lamellar, and extremely variable in number and size. It was not necessary to add a synonym to the original name, as Mr. Conrad proposed the name *subviridis* (New Fresh-water Shells,) for the brown variety which he figured; in the event of its proving distinct from U. viridis of the west. This method of proposing names is very proper, because it has a tendency to limit the number of synonyms which might might otherwise be inflicted upon the nomenclature of natural history. Some contend that the shell from the Susquehanna cannot be the viridis, because the latter has not been found in the west, its locality being Kentucky river, according to Rafinesque; whilst the Tappanianus is found in the Susquehanna; but Mr. H. has found unequivocal specimens in Pigeon creek, Kentucky, which cannot be distinguished from those found in eastern Pennsylvania. He has found a variety with a thick shell, in James river, Va. Rafinesque's name has been objected to, but one of the specimens exhibited presents as brilliant a green as that of Anodonta cataracta, Say.

Mr. Haldeman wished the fact to be recorded, that he had placed some living specimens of Western Unio, Unio rectus, triqueter, circulus, cylindricus, ovatus and others, in the Susquehanna, where no western species has hitherto been found, except U. viridis, Raf.

STATED MEETING, October 12, 1841.

Vice President Morton in the Chair.

DONATIONS TO CABINET.

Skull of Chelonura Temminckii (Troost), from the Mississippi river.—Deposited by Dr. Morton on behalf of Dr. Holbrook.

Corvus pica, English Jay; Corvus garrulus, common Jay; Perdix cinerea, female; and Sciurus vulgaris, from France. —Presented by Dr. Colin Arrott, through Dr. Watson.

Purpura persica.—From Mr. Pierpoint.

Caracolla Hydiana; two species of Bulimus, undescribed? two specimens each, from the Sandwich Islands.—Presented by Dr. J. C. Jay.

Unio lanceolatus, two specimens; James river, at Buchannan, Virginia.—From Mr. S. S. Haldeman.

Unio purpureus; two specimens, and Limnea catascopium. Providence, R. I.—Presented by Dr. Blanding.

Turbinella ceramica, and an Ancillaria.—Presented by Dr. S. G. Morton.

Unio retusus, U. clavus, U. circulus, U. lens, U. donaciformis, U. solidus? U. pileus, U. personatus, U. ridibundus, U. sulcatus, U. undulatus, U. parvus, U. abruptus, U. lapillus, U. Æsopus, U. foliatus, U. fragosus; each species illustrated by a series to show the male and female forms, with the different ages and varieties. Helix multilineata, H. clausa, H. Pennsylvanica, H. tridentata, H. appressa, H. concava, H. thyroidus, H. elevata, H. ligera, H. palliata, H. monodon; from three to five specimens each. From the

vicinity of Cincinnati, Ohio.—Presented by Mr. J. G. Anthony, of Cincinnati, through Mr. J. S. Phillips.

The copperplates belonging to Conrad's Marine Shells, numbers 1 to 8 inclusive, and 11 and 12, being all the coppers used in that work, were presented by T. A. Conrad, through J. S. Phillips: Mr. Conrad reserving to himself the privilege of taking such impressions from them as he may hereafter require.

DONATIONS TO LIBRARY.

Katalog von Petrefacten. Sammlungen, nach Brown's Lethea Geognostica. 8vo. Heidelberg, 1841.—From Francis Markoe, Jr., Esq.

Catalog fur geognostisch-petrefactologische Sammlungen. 8vo. Heidelberg, 1841.—From Francis Markoe, Jr. Esq.

Transactions of the Zoological Society of London. 4to. vol. 2, Part 5. London, 1841.—From the Society.

Reports of the Council and Auditors of the Zoological Society of London. 8vo. London, 1841.—From the Society.

A new Pocket Map, Geological and Topographical of Nova Scotia.—From Francis Alger, Esq.

WRITTEN COMMUNICATIONS.—A letter was then read from Thomas M. Brewer, Esq. of Boston, acknowledging the announcement of his election as a corresponding member.

Dr. Morton read the following communication on a section of the Geology of the United States.

Description of several new species of Fossil shells from the cretaceous deposits of the United States.

First series,—from Upper Missouri.

It is now nearly forty years since Messrs. Lewis and Clark, in their expedition to the Columbia river, procured a few fossils at the great bend of the Missouri river, (Lat. 43° 40′ N.) which I identified as belonging to cretaceous deposits of the same age as the Marl or Ferruginous sand of New Jersey, Delaware, Alabama, &c. Sub-

sequently Mr. Nuttall brought some additional species, but for the most part in fragments. Very lately, however, Mr. J. N. Nicollet having personally visited that remote region, obtained a series of fossils in far greater perfection and variety than any previous traveller. It is proposed on the present occasion to indicate the species, and accompany them with a few brief remarks.

GENUS AMMONITES.

1. A. mandanensis.—Shell compressed, with scarcely two volutions, the inner being received into a superficial fossa of the outer whorl. Internal and external margins armed with pointed tubercles, between which are delicate, gently curved costæ, mostly bifurcated about one-third of the distance from the outer tubercles, beyond which they extend across the periphery of the shell; the latter gently plano-convex. Umbilicus imperforate?

The diameter of the largest specimen has been about three inches; of the smallest I have seen, an inch and a half. In the smaller specimens the internal marginal tubercles are very indistinct; but in other respects this species appears to be but little modified by age.

2. A. abyssinus.—Whorls convex, making two nearly complete volutions, with strong, gently curved, bifurcated ribs, slightly tuberculated at the margin of the dorsal periphery, which they cross to meet the costæ of the opposite side. Umbilicus perforate. Diameter from three-fourths of an inch to one inch.

This species is strikingly different from the A. mandanensis, in the greater size of its costæ, its perforate umbilicus, and its convex dorsal periphery.

3. A. borealis.—Shell convex, rapidly enlarging towards the mouth, with at least two volutions, one received deeply into the other; costæ delicate, gently curved, and bifurcate towards the convex dorsal periphery, which they cross in arched lines between numerous minute tubercles.

Some years since I saw several specimens of Ammonites which were obtained by Judge Bry, in the township of Wachita, in Lou-

isiana. I have elsewhere (Synop. p. 24,) considered them as indications of cretaceous deposits; and my recollection induces me to believe that their characters correspond either to A. Abyssinus or A. borealis.

Besides the preceding fossils from upper Missouri, Mr. Nicollet obtained the following species from the same interesting locality.

Ammonites Conradi (nobis,) Synop. Pl. xvi. fig. 1, 2, 3. Large and beautifully preserved specimens.

Ammonites placenta, (Dekay,) Synop. pl. 2, fig 1. This species is found from comparatively small dimensions to a gigantic size, probably not less than two or three feet in diameter.

Inoceramus Barabine (nobis,) Synop. Pl. xvii. fig. 3, and Pl. xiii. fig. 11. This shell has hitherto been found only in Greene county, Alabama, but appears to be abundant in the Mandan country, often compressed and broken, but readily identified.

Baculites compressus, (Say,) Synop. Pl. ix., fig. 1. This species so nearly resembles B. ovatus of the same naturalist, from the marls of New Jersey, that I am almost disposed to consider them identical. The species in question is found of gigantic dimensions, for example, more than a foot in length, and three or four inches in diameter.

Belemnites Americanus, (nobis,) Synop. Pl. 1, fig. 1, 2, 3.

Hence it appears that among the small number of species noticed on this occasion, at least four are found in deposits of the same age on this side of the Mississippi, thus identifying the cretaceous strata over an immense geographical area, which commences in New Jersey, and perhaps at Martha's Vineyard, is traced in all the Atlantic States to Georgia, thence through Alabama and Mississippi, across the Mississippi to Louisiana, and Arkansas, where it is seen on the plains of the Kiamesha. From this point until we approach the Great Bend of the Missouri river, in the Mandan country, it has not yet been traced; but in the last named region, about 1500 miles above the mouth of the Missouri, it becomes again conspicuous as

already stated, abounding in characteristic organic remains of great beauty. The extent of this locality is not yet known; it is probable that it occupies a very large area, and is destined to become one of the most interesting and prolific fossil localities that has tempted the enterprise of geologists. These fossils are remarkable alike for their admirable preservation and their great beauty; the latter being much heightened by the presence of an opalescent nacre which has been rarely noticed in the other cretaceous beds of this country.

Second series,—from the lower cretaceous beds, or ferruginous sand of New Jersey and Delaware.

AMMONCERATITES.

A. Conradi.—Shell with an entire whorl, somewhat compressed, with numerous, distinct, slightly curved costæ, which diminish and become almost extinct at the internal peripheral margin: external periphery sub-angular, and undulated by the transit of the costæ.

This specimen is a cast in a dark grey ferruginous sand, charged with minute scales of mica. The terminal end is nearly complete, and is almost on a line with what appears to have been the mouth of the shell, and the two approach within a quarter of an inch of each other. Diameter 2¼ inches.

This is the first example of an Ammonceratite found in the United States. It was obtained from a marl pit near Arneytown, New Jersey, by Mr. Conrad, in whose name I gladly introduce it to public notice.

This genus is characteristic of the European chalk, having been found both in England and France, in deposits of that age; thus affording another evidence of the analogy between the cretaceous deposits of the old world with the marl strata of the new.

HAMITES.

H. annulifer.—Shell small, cylindrical, equal; the external two-

thirds convex, the internal third concave, with numerous delicate, distinct and closely approximated rings, which encircle the whole shell.

One end of this remarkable species has the characteristic curve and septa of the Hamites. The concave surface looks as if designed to receive the cylinder of the opposite side. Length nearly one inch.

Found by Mr. Conrad in the ferruginous sand at the Deep-cut of the Chesapeake and Delaware canal.

STATED MEETING, OCTOBER 19, 1841.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Eggs of sixteen species of birds found in Michigan, July, 1841, by Dr. George C. Leib, and by him presented to the Society, viz.:

Anas discors, 3.
—— boschas, 14.
Fulica Americana, 16.
Galinula galeata, 10.
Podiceps Carolinensis, 6.
Ardea exilis, 12.
——— lentiginosa, 9.
Turdus felivox, 5.
——— migratorius, 8.
——— rufus, 1.
Icterus phœniceus, 4.
Cocyrus erythropthalmus, 15.
Quiscalus versicolor, 11.
Sturnus ludovicianus, 2.
Ortyx virginianus, 7.
Muscicapa tyrannus, 13.

Carbonate of Iron, from Cecil county, Maryland.—From Dr. Geo. Spackman.

Trionyx ferox ? from a stream tributary to Lake Erie, in Monroe county, Michigan.—From Dr. G. C. Leib.

Four skulls of the Ottawa tribe of Indians from Michigan.—Collected by Dr. Leib, and deposited by Dr. Morton.

DONATIONS TO LIBRARY.

Lettre sur le Rhopalodon, genre de Saurien fossile du versant occidental de l'oural. Par G. Fischer de Waldheim. 8vo. St. Petersburg, Russia, 1841.—From the Author.

Dr. Edward Hallowell read the following paper on a new species of Reptile; viz.

Description of a new species of Chameleon from Western Africa, by Edward Hallowell, M. D.

CHAMÆLEO *gracilis*.—Description. Head of moderate size, flattened above, depressed in front, presenting upon its upper surface a longitudinal carina, bifurcated anteriorly; each of the divisions resulting from this bifurcation, terminates near the posterior extremity of the supraciliary ridge; in front of the eye is a ridge continuous with the one above the orbit, extending toward the extremity of the nose. No denticulations are observed upon the supraciliary ridge, on the one just described, nor upon the longitudinal carina, or its divisions; but they are very distinct along the superior margin of the temples. A number of small tubercles are seen upon the face, quite near to the extremity of the nose, and also upon the sides of the head in front of the nostril; a marked concavity exists upon the upper and posterior part of the head, immediately behind the bifurcation of the longitudinal carina; the space in front comprised between the two branches is perfectly plane; the head is covered above with polygonal scales of unequal size, and smooth for the most part; those situated in the depressions upen the upper and posterior part of the head are somewhat

larger and more uniform in size than those upon the vertex and face; scales upon the sides of the head of nearly uniform size, many of them tuberculated; there are nineteen teeth on each side of the upper and lower jaw; scales upon the sides of the body of various shapes, some of them hexagonal, others pentagonal; the greater number are quadrangular: they vary also in size; those upon the body, near the spine, are the largest; some of the scales present a plane surface, others are more or less convex, and many on examination with a glass are observed to have a very distinctly elevated point in the centre; numerous small granules are interspersed between the scales upon the abdomen; none are observed upon the sides: scales upon the throat irregular in size and shape, many of them tuberculated, those along the median line the largest; scales upon the abdomen granular, of nearly equal size, many of them presenting an elevated point in the centre; those upon the under surface of the tail oblong, hexagonal, some of them pentagonal, many of them with a depression in the centre; those upon the under surface of the hands and toes very distinctly quadrangular, arranged in transverse rows; extremities slender; tail somewhat longer (about a fourth of an inch) than total length of head and body.

Colour.—The predominating colour is green, presenting different shades under different circumstances; at times, the snout and margin of the jaws, the neck, limbs and tail are marked with ferruginous; and a narrow vitta of a light chocolate colour is seen extending from the axilla to near the groin; the whole of the body presents at times the latter colour, mixed with dusky green or ferruginous; a triple row of black spots is observed upon the tail, extending from the root to within a short distance of its extremity; a similar row exists upon the back, corresponding with the transverse processes of the vertebræ: while one side of the animal presents these shades, the other, or that which is less exposed to the light, is of a uniform pea-green colour, except the lateral vitta and a small spot above the shoulder, which are of a light flesh colour, and at times perfectly white; on exposing the animal suddenly to the light of a candle, on one occasion, four or five irregular bands

of a light chocolate colour were observed upon the body, extending from the back to the middle line of the belly, the intervening spaces as well as the bands themselves being marked with numerous dark coloured spots; these bands often became dark green, the intervening spaces being a shade or two lighter; seven or eight converging bands of the same dark green colour are observed upon the eyelids. their lower broadest part being directed towards the margin of the orbit; pupil black; iris golden; under surface of belly, groins, axillæ, as well as inner surface of extremities, whitish with a shade of green. The same banded appearance above described, was frequently observed when the animal was in exercise, as when employed in efforts to get out of its cage, or when allowed to walk upon the table or floor; when quiescent these bands were rarely noticed. On the 9th of July she laid twenty eggs; these were perfectly white, without spots, and of an oval figure; for several days she had been restless, and was employed the greater part of the day in scratching in one of the corners at the bottom of the cage; the coloration of the animal at this period was different from that noticed at any other; the whole body presented a deep copperas green color, changing at times to a dusky brown: at times the body has a mottled appearance; at others four or five dark coloured transverse bands were noticed, the intervening spaces, as well as the bands, presenting numerous light green spots upon a ground of dusky green; on turning the animal suddenly round to the light, the side opposite to that described, appeared of a rich sap green colour, changing in a few moments to a deep bottle green, the transverse bands becoming less and less distinct; the spot over the shoulder and the lateral vitta were reddish brown: immediately after death the green assumed a yellowish tint, and two large blotches appeared on each side of the body of the colour of lamp black.

Sept. 11, 1841. The animal has now been immersed in alcohol for more than a year, and presents a very different appearance from that which existed during life; the head, sides of the body, tail and upper surface of extremities are of a light bluish or leaden colour; the dark coloured blotches upon the sides are visible, but

much less distinct than at the time of the death of the animal; throat, abdomen, and under surface of extremities and tail, whitish; the spot upon the shoulder and lateral vitta are dirty white.

Dimensions. Length of head, one inch (Fr.): greatest breadth six lines; height seven lines; length of neck two lines; of body two inches eight lines; of tail four inches seven lines; of anterior extremities two inches; of posterior one inch. (These measurements were taken after the specimen had been long immersed in spirits.)

Habits.—The animal arrived in this city from New York on the 12th of June, 1840. During the first three days its appetite was good, spending the greater part of the time in catching flies by means of its long extensible tongue, which on one or two occasions it was observed to protrude to the extent of nine inches. The motions of the animal were very sluggish, passing almost the whole of the day upon the perch of the cage in which it was kept, turning the eyes in every direction in search of flies, which were no sooner within reach than the tongue was protruded with the rapidity of lightning, and the insect rapidly drawn into the mouth. In the three or four following days, which were rainy and cold for the season, her appetite appeared to have failed; during this time she was not seen to catch a fly, although many were quite near, but she often descended from the perch to drink; notwithstanding her indisposition to eat, she would watch for hours the motions of the flies about the cage, the eyes preserving their accustomed brilliancy of expression. On being placed upon a plane surface, she walked with more care, and often with more rapidity than might have been expected from the pincer-like arrangement of the feet and hands, the fingers and toes being fully extended; but the usual manner of progression and general appearance of the animal when in motion, corresponded with the description of those given by Valisnieri. During the time that she was laying her eggs, she did not eat, nor had she taken food for several days previous; she became greatly emaciated, and died almost immediately after their expulsion from the body.

Habitat.—Liberia, in Western Africa.

General observations. The specimen above described was purchased by the Rev. Charles Eden, of Monrovia, of one of the African natives, and sent to Dr. Blanding of this city, who, with his accustomed liberality, placed it in my hands for observation and description. A drawing of the animal was recently shown to M. Bibran, of the Garden of Plants, by the artist who made it, who informs me that he considers it as new.

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*Dr. Goddard stated that he had examined the so-called "Missourium Kochii," and found it to be a skeleton composed of Mastodon bones, most of which appeared to belong to a single set, many, however, having been superadded, and others mended and glued together in a manner wholly erroneous.

The following errors were especially noticed:

Spine.—The spine presented the anomaly of 8 cervical vertebræ; and instead of 19 dorsal and 4 lumbar, had 23 dorsal and 10 lumbar vertebræ, making the number of bones in the spine too great by 11. The bones articulated with the 2nd and 4th ribs were cervical vertebræ. The spaces between the vertebræ were much magnified by thick wooden blocks placed between them, and the spine was curved upwards, so as to give an exaggerated idea of the height of the animal.

Ribs.—These were redundant in number, and were spread out as much as possible, so as to present the appearance of a wide and flat chest. The 1st pair of ribs were stuck on the bones of the shoulder, to resemble clavicles—bones which the Mastodon does not possess.

Head.—The head was that of a Mastodon with the top deficient, and a piece of an ethmoidal? bone glued on in front to

*This communication was made to the Society at the meeting of October 12th. The MS. having been inadvertently mislaid, its contents could not be inserted in their proper place.—EDITORS.

resemble a snout. The tusks were distorted laterally, so as to occupy a space of 18 feet in width.

Scapulæ and ilia.—These having been deficient, were very ingeniously pieced out of wood, glued over so as to resemble bone.

Feet.—The feet were ludicrously made up of carpal and tarsal bones, and presented the wonderful anomaly of 4 phalanges to each toe.

Several other discrepancies were observed; apart from which Dr. G. considered the skeleton one of very great interest.

MEETING FOR BUSINESS, OCTOBER 26, 1841.

PROFESSOR W. R. JOHNSON in the Chair.

After the usual reports of committees and other private business, the Society proceeded to ballot for new members; whereupon Mrs. Lucy W. Say was unanimously elected a member of the Academy.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. I. NOVEMBER, 1841. No. 8.

STATED MEETING, NOVEMBER 2, 1841.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Skull, fins and tail of Delphinus delphis, common Porpoise, from the Gulf Stream; and four Balistæ, in spirits.—From Mr. H. F. Baker, through Dr. Wm. Blanding.

Arca senilis, from Africa.—From Dr. Blanding.

Phrynosoma cornuta, in spirits, from Texas.—Presented by Mr. Alex. Lawson.

Remarkable vegetable organic remains, from Niagara.—From Dr. Blanding.

Two specimens of Anthracite, from Portsmouth, Rhode Island; and Granite of Leominster, Mass.—From Prof. Johnson.

Chlorophyllite: Unity, New Hampshire.—From Dr. C. T. Jackson, of Boston.

Skin and bones of Simia satyrus? preserved in salt; from India.—Presented by Capt. Land.

DONATIONS TO LIBRARY.

Proceedings of the Botanical Society of London, for 1839. 8vo.—From the Society.

American Journal of Science and Arts. Vol. 41. No. 2. Oct. 1841.—From the Editors.

WRITTEN COMMUNICATIONS.—A letter was read from Dr. Frederick Tamnau, Jr., of Berlin, acknowledging the receipt of his diploma of membership in this Society, and soliciting an exchange of the minerals and fossils of Germany for those of America.

Professor Johnson made some remarks on the samples of Anthracite from Rhode Island, this evening presented, and stated—

That the formation in which they occur reposes on a coarse conglomerate, which rests immediately on granite or hornblende rocks of the primitive series. The near proximity of primitive rocks appears to have exercised an important influence, not only on the position, but on the present character of the anthracite of this formation; for while it has thrown the beds into a highly inclined position, it has expelled the last vestiges of volatile matter, decomposed the sulphuret of iron, and changed the colour of the coal in some of the beds to a nearly steel blue. The vegetable impressions are in these cases to a great extent obliterated, and the traces of them only appear at the surfaces of deposition. In other beds, the impressions are more perfect, and their genera and species are more readily made out.

An idea has been formerly current, that the coal formation of Rhode Island and Massachusetts is of more ancient date than those of Pennsylvania; but the identity of fossil remains occurring in both, seems to determine the geological period of both to be the same. And in this respect we have analogies sufficiently numerous in our own country, to induce us to believe that all the coal formations are essentially contemporaneous, and that whether they rest on granite, as in Rhode Island, Massachusetts and Virginia, on the older members of the secondary, as in the anthracite fields of Penn-

sylvania, or on the mountain or the "cliff" limestone of the western States, the coal series has everywhere been the product of a period in the history of our planet which was highly prolific in vegetable life, of which the remains were deposited on whatever member of preceding formations was exposed in a condition to receive them.

The anthracite of Rhode Island appears to have been subjected not only to a high temperature, but also to intense pressure, and to have been much comminuted by the friction of one member of the formation sliding over another in the uptilting which the strata have evidently undergone. The coal in all such cases being more tender and friable than the sandstones, slates, and limestones, becomes the unguent in the joints of the stratification, and the results of its power to facilitate the motions of the strata as they are partially folded up, are, 1st, a pulverulent portion in contact with either the top or the bottom rock of the bed; 2d, a high polish imparted to some of the sliding surfaces of the more durable coal; 3d, an irregularity in the thickness of the coal beds, the indentations of the upper and lower rocks being not unfrequently found opposite to each other, forming thick places in the coal seam, and containing much of the broken material which has been displaced from the parts where the prominences of the rocks come nearly in contact, and almost shut up the seam.

Prof. Johnson adverted to the fact that for reasons stated by the geologists of Rhode Island and Massachusetts, viz. the great amount of drift or diluvial matter with which all parts of this coal formation have been covered over, the limits of the coal trough have not hitherto been traced with much precision.

Within the city of Providence, the strike of the beds is a little to the east of south, and the dip of course to the north of east. The mining operations are in general very troublesome and expensive, on account of being carried on below water level, and through a thick stratum of loose earth and gravel. Very little of the coal hitherto obtained has been of merchantable quality.

STATED MEETING, NOVEMBER 9th, 1841.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Five specimens of rare and beautifully mounted birds of South Africa, viz:—

Aquila vocifer.
Haliætus armiger.
Scopus umbressa.
Ibis hagedasch.
Sula bassana, or Solen Goose.

Presented by Mr. C. A. Poulson.

Two boxes of Insects from India, from Dr. Joseph Carson.

DONATIONS TO LIBRARY.

Observations on the Secondary and Tertiary Formations of the Southern-Atlantic States. By James T. Hodge. 8vo. From the Author.

Descriptions de quelques espèces de Pourpres. Par M. Duclos. 8vo. Paris, 1832. From the Author.

Note sur une fossile de Laon. Par M. Duclos. 4to. From the Author.

Journal of the House of Representatives of Pennsylvania. 3 vols. 8vo.—Journal of the Senate. 2 vols. 8vo. Appendix to the Journal of the Senate; and one Volume of the Laws of Pennsylvania, passed by the Legislature in 1841. From the Commonwealth of Pennsylvania.

Description of Sixteen new species of North American Birds. By Jacob P. Giraud, Jr. M. D. Folio. New York, 1841. From the Author.

WRITTEN COMMUNICATIONS.—A letter was read from Dr. J. P. Giraud, presenting the copy of his work noticed in the donations of this evening.

VERBAL COMMUNICATIONS.—Mr. Quinby communicated some facts in relation to the spontaneous combustion of bituminous coal.

He had recently conversed with a gentleman who arrived on Friday last, in Philadelphia, from South America. The steam vessels sent from England to the Pacific, to run between Valparaiso and Panama, were made the subject of remark. His informant stated that one of the cargoes of coal sent from Great Britain to Chili, for the use of the steamers, took fire spontaneously on the voyage round Cape Horn; and that it was with difficulty extinguished. The gentleman also alluded to the fact so well known on that coast, that cargoes of bituminous coal, obtained at Conception, a few degrees south of Valparaiso, had ignited spontaneously on the voyage to Coquimbo, in the north of Chili, where an extensive copper-smelting establishment had been projected by an English company, and which was abandoned mainly in consequence of the character of the Conception coal.

Dr. Morton stated, that he had in his possession a living albino Raccoon, PROCYON LOTOR, which he had received from the Rev. Joseph B. Gross, of Saillersville, near Easton, Pennsylvania. The animal is remarkably large and healthy, with very long yellowish white fur and pink-coloured eyes. Both in appearance and habits, this individual has much resemblance to a bear, and forcibly reminds the observer of the fact that Linnæus placed the Raccoon in his genus Ursus.

Prof. Johnson exhibited an apparatus to illustrate the phenomena of the rotation of fluids.

A cylindrical vessel or jar, about 4 inches in diameter and 12 inches high, was placed on a stand supported on an axis of revolution, standing vertical on a pivot, and put in motion by a band from a larger wheel moved by a crank. When any liquid is placed in this jar and a rapid motion is given to the latter, the liquid by degrees

acquires the rotary velocity, and by the effect of centrifugal force is compelled to rise round the inside of the jar. If the velocity be sufficient, the liquid may be made to rise to the very top of the jar and be thrown out.

If two liquids of different specific gravities and incapable of chemical action on each other, be placed within the jar, the rotation of the glass may give to the different liquids corresponding velocities of rotation, but these will be acquired in times varying with the adhesiveness of the liquid to the glass.

This diversity in the times of acquiring the same velocity as the containing vessel, gives rise to some apparent anomalies, while the speed is either increasing or diminishing. If oil and spirit of turpentine be placed in the cylinder, the former at the bottom, the surface of separation is more concave upward than the upper surface of the turpentine, because the oil is more adhesive than the spirits of turpentine: but placing alcohol below the spirits of turpentine, the latter becomes the more adhesive liquid and acquires the velocity of revolution of the jar sooner than the other, whence it will, by its superior centrifugal force, be urged downward as well as upward, from its original level while at rest. The more adhesive liquid in this case constitutes a double concave lens. The same is produced when water, oil and alcohol are made to revolve in the same jar; the oil occupying the middle stratum in a state of rest, forms, at first and while the velocity is increasing, a concave surface both above and below, but when the speed of the revolution of the jar is slackened, it is by its superior adhesiveness sooner brought to rest than the other two liquids; these will therefore, by continuing their centrifugal force after that of the oil has ceased, cause the latter to assume a double convex form.

Prof. Johnson referred to some statements relative to experiments of this nature some time since made in Paris, in which it was declared, that the "*chemical affinities*" of the liquids were the cause of these apparent anomalies; and that attempts had been made to deduce from experiments of this nature "a mechanical measure of chemical affinity."—With that species of attraction he proved that the results could have no connexion.

STATED MEETING, NOVEMBER 16, 1841.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO CABINET.

Strombus tricornis, two specimens.—Presented by Mr. John Rulon.

Ovula oviformis: Conus pennaceus, C. gubernator, C. terebra: Murex cornutus: Peterocera pseudo-scorpio: Cypræa felina, C. eburna: and Marginella adansoni.—From Mr. Wm. S. Vaux.

Nucula tenuisulcata, N. levis, and Terebratula septentrionalis. —From Mr. S. S. Haldeman.

DONATIONS TO LIBRARY.

Contributions of the Maclurian Lyceum to the Arts and Sciences. 8vo. Nos. 1, 2 & 3. Philad. 1829.—From Mr. Judah Dobson.

Proceedings of the American Philosophical Society, for July, August, September and October, 1841.—From the Society.

Notes on the Use of Anthracite in the Manufacture of Iron; with some remarks on its Evaporating power. By Walter R. Johnson, A. M. 8vo. Boston, 1841.—From the Author.

WRITTEN COMMUNICATIONS.—A letter was read from Dr. Dunglison, Secretary of the American Philosophical Society, acknowledging the reception of the last number of the Academy's Proceedings.

A letter was also read from Dr. Wm. Blanding, with an extract from another to him from Capt. Land, presenting the

Academy with the complete skeleton and skin of the Orang of Borneo, Simia satyrus? received November 2d.

Dr. George C. Leib communicated a description of the nest and eggs of the Fulica Americana and Anas discors.

He saw the Fulica Americana in the month of June, 1841, breeding in the greatest abundance in the marshes bordering on Lake Erie, Erie county, Michigan. They were associated with the Florida galinules (Galinula galiata,) which were likewise employed in the labour of reproduction, and so close was the intimacy between them, that their nests were interspersed over the marsh in the most neighbourly contiguity, seldom being more than a few feet apart. The nest, rounded in form and rude in structure, is composed entirely of dried or withered rushes, without lining of any sort, slightly interlaced, except at bottom, where there is a simple crossing of the pieces to the depth of several inches.

It is five inches in depth, by a foot and a half to two feet in diameter. This large mass is placed on the surface of the water among the dense rushes, to which it is attached in several points of its circumference, thus rendering it less liable to be swept off by the winds and waves.

When disturbed, these birds emit a note not unlike the cackle of the domestic hen, which is transmitted from one to the other for a considerable distance around, till the air becomes vocal with their music. This was heard by Dr. Leib not only during the day, but also at all hours of the night.

The number of the eggs varies from ten to fifteen, though the latter were observed to prevail. They are of an oval form, and measure two inches by one inch and a quarter, uniformly sprinkled with small dark brown spots on a greenish yellow ground. Both male and female assist in incubation.

Owing to their exceeding abundance, they are gathered by the neighbouring farmers for the table, and are considered by them superior in flavour and delicacy to the common hen's egg.

Dr. Leib found the nest of the blue-winged Teal (Anas discors,) together with that of the Mallard (Anas boschas,) in the month of June, in the meadows adjoining the marsh above referred to.

It is composed externally of dried grasses, neatly arranged in a circular form, and lined with a thick bed of down, taken from the

breast of the female. It contained 18 eggs of a delicate cream colour, which measure 2 inches by 1¼ inch. Though remarkably timid and wary at other times, such is its abstraction or devotion when upon the nest, that it would suffer me to approach near enough to strike it with a stick; then, in the greatest alarm, suddenly flutter and bustle off through the grass for some distance, like a wounded bird; until, satisfied that the ruse had diverted attention from its treasure, it would mount into the air and quickly leave the objects of its terror and solicitude behind.

Dr. Morton made some remarks on the so called *Pigmy race* of people who are asserted to have formerly inhabited a part of the Valley of the Mississippi.

It has long been contended by intelligent persons, who, however, were ignorant of anatomy, that the adjusted bones of individuals of this race never exceed four feet and a half in height, and are often but three feet. These statements induced Dr. Morton to investigate the subject by means of a skeleton of one of these people, which he at length obtained through the kindness of Dr. Troost, of Nashville; Mr. A. M'Call, a correspondent of Dr. Troost, having exhumed these remains from a cemetery near the Cumberland Mountain, in White county, Tennessee.

"The coffins," observes Mr. M'Call, in the letter read by Dr. Morton, "are from 18 to 24 inches in length, by 18 inches deep and 15 wide. They are made of six pieces of undressed sandstone or limestone, in which the bodies are placed with their shoulders and head elevated against the eastern end, and the knees raised towards the face, so as to put the corpse in a reclined or sitting posture. The right arm rested on an earthen pot, of about two pints in capacity, without legs, but with lateral projections for being lifted. With these pots, in some graves, are found basins and trays also of pipe clay and comminuted shells mixed; and no one of these repositories is without cooking utensils. In one of the graves was found a complete skull, and an os femoris, but most of the other bones were broken in hastily removing them. This is said to be the largest skeleton ever found at any of these burying grounds. It has the cranium very flat and broad, with very projecting front teeth, and appears to have pertained to an individual not over twelve or fourteen years of age."

After reading Mr. M'Call's letter, Dr. Morton exhibited the bones which accompanied it, and remarked that the stage of development of the teeth indicated a very juvenile subject. For example, many of the deciduous or first teeth yet remained in both jaws; while the only teeth of the permanent set which had protruded, were the first molars and the incisors, which, as every anatomist knows, make their appearance at about seven years of age. Of the other permanent teeth, some had no part formed but the crown, and all were completely embraced within the maxillary bones. The presence of the new incisors, isolated from the cuspidati which had not appeared, obviously gave rise to Mr. M'Call's remark respecting the very "projecting front teeth," but which, however, are perfectly natural in position and proportion. The cranial bones are thin, and readily separable at the sutures; nor does the *flat and broad* configuration of the cranium differ from what is common to the aboriginal American race. The long bones have their extremities separated by epiphyses; and every fact observed in these remains is strictly characteristic of early childhood; or about the seventh year of life. Even the recumbent or sitting posture in which they are found, has been observed in the dead bodies of the American nations from Cape Horn to Canada; and the utensils found with them, are the same in form and composition with those exhumed from the graves of the common Indians.

Dr. Morton concluded by remarking that these remains were to him an additional and convincing proof of what he had never doubted—viz. that the so called Pigmies of the western country were merely children, who, for reasons not readily explained, but which actuate some religious communities of our own time, were buried apart from the adult people of their tribe.

STATED MEETING, NOVEMBER 23d, 1841.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

The American Phrenological Journal and Miscellany. 8vo. Vols. 1, 2, and 3. From Nathan Allen, M. D.

An Essay on the connection of Mental Philosophy with Medicine. By Nathan Allen, M. D. 8vo. Philadelphia, 1841. From the Author.

Boston Journal of Natural History. Vol. 2. Nos. 3 and 4. Boston, 1839. From the Society.

WRITTEN COMMUNICATIONS.—Mr. S. S. Haldeman submitted a note on a genus of Dolphins. He proposes the name Hypodon for those dolphins which have two teeth in the lower jaw, hitherto constituting the genus Diodon; which name, however, is preoccupied for a well known genus of fishes. The name may be thought too much like Hyperodon; but this is an advantage, as the two are taken from similar characters; Hypodon meaning *teeth below;* the other, *teeth above.* Examples, H. Desmarestii—H. Sowerbyi.

VERBAL COMMUNICATIONS.—Prof. Johnson exhibited and explained his apparatus, illustrative of the laws of chemical combination and of the combining volumes of gaseous substances.

This apparatus consists of a series of cubical types, each of such magnitude as to represent by its bulk in cubic inches the atomic weight of one of the elementary bodies. Thus hydrogen is represented by a cube one inch on a side; oxygen, by a cube of two inches on a side, containing of course eight cubic inches; iron, by a cube containing twenty-eight cubic inches, and so of the whole fifty-four

simple bodies. The largest cube, representing Uranium, is a little more than six inches on a side. Each cube bears on one of its faces the conventional chemical symbol of the body whose atomic weight it represents, usually the first letter of its name, together with the number expressing its atomic weight. Many of the types are coloured either by a coating of the material represented, or by some convenient pigment exhibiting the natural appearance of the body represented. The number of types of each body varies with the complexity of the compounds into which it is capable of entering; the greatest number being required of those bodies which constitute organic substances, viz. carbon, hydrogen, oxygen and nitrogen.

A second part of the apparatus consists of a light frame supporting three shelves about fourteen inches apart, open both at the front and rear. This frame is four feet long and two and a half feet high. In order to represent chemical combinations and decompositions, the atom-cubes are first placed separately upon the middle shelf, to represent the case of *solution* or the liquid state. They are then brought together to indicate *mixture of solutions*. To represent *precipitation*, those atoms which are in fact precipitated in actual solutions are carried to the lower shelf; and to represent the products *converted into gas*, those atoms which constitute such products are carried from the middle to the upper shelf.

The chemist performs the processes first in his jars or retorts, and then arranges the atoms to indicate the real operations which have been taking place before the eyes of his class.

In exhibiting the combinations of bodies which may assume a gaseous form, Prof. Johnson makes use of a third apparatus, consisting of glass cubical boxes of 100 cubic inches each, and of others containing 50 and 16¾ cubic inches.

To represent the combinations and decompositions of gases as in experiments in Eudiometry, both the cubical types and glass boxes are brought into requisition. Thus the type of hydrogen (a cube one inch on a side, marked H—1,) is placed on the upper shelf, and over it is inverted a cubical glass box, marked 100, and actually containing that number of cubic inches; an oxygen type (marked O—8) is placed separately on the same shelf under a glass box of the same size as to base, but of only half the height of the former, and

containing of course 50 cubic inches. To represent the combination of these gases to form water and to indicate the amount of condensation which takes place, the oxygen type is taken from under its own box and placed with the hydrogen type beneath the glass box of 100 cubic inches, the 50 inch box being at the same time removed from the frame. There is then seen the sum of the weights of the constituents of water (9), and the bulk of the vapour of water, the same as that of the hydrogen which had entered into its composition. To convey the impression that the product is a liquid, the resulting combination of atoms is carried from the upper to the middle shelf, without being accompanied by the volume-cube.

The advantages found to result from this method of illustration over those hitherto in use were stated to be the saving of much time and labour, in writing out diagrams and making drawings, and the avoiding of inconvenience of working at a black-board to give after all but an imperfect impression of the truth to be conveyed. An effect of not less importance was derived from appealing to different faculties at the same time.

To some minds the bulk of a body conveys a far more distinct impression of its weight than the figures which represent that weight. In the method now exhibited, both these modes of appealing to the mind and memory are united. The colour of many of the substances combined with the bulk—with the symbols which represent them and with the figures which express their weight, can hardly fail to fix a lasting impression on the mind of every student in chemistry. To these may be added the facility of making apparent by direct juxtaposition the relation by weight and by volume of the constituents of all gaseous mixtures.

The application of this apparatus was shown in exhibiting the composition of the oxides and other minerals.

The views of M. Liebig in regard to the composition and true *radical* of Phosgene gas, carbonic acid and oxalic acid, were also displayed.

The constitution of ammonia, of atmospheric air, of nitrous oxide, and binoxide of nitrogen, was illustrated both in regard to atomic weight and combining volume, as were the several compounds of chlorine with oxygen. The acetate of lead was decomposed by a

solution of hydrosulphate of ammonia, and the resulting acetate of ammonia, sulphuret of lead and an atom of water were indicated as the results.

Chloride of iron precipitated by carbonate of ammonia, exhibited the effects of giving a precipitate of oxide of iron and evolving carbonic acid, decomposing water instead of forming it as in the preceding example.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. I. DECEMBER, 1841. No. 9.

STATED MEETING, NOVEMBER 7, 1841.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Two species of Fossil Scutellæ, from the lower cretaceous deposits west of Charleston, S. Carolina, viz : S. Carolinensis and S. macroptera.—From Dr. Ravenel.

Productus in Limestone, (being a fragment of the celebrated rock containing the impressions of two human feet, now in the possession of Dr. Owen, of New Harmony, Indiana;) section of a Fossil Palm tree; and argillaceous limestone with vegetable impressions, from Posey county, Indiana.—All presented by Wm. Augustus Twigg, Esq.

Iron ore, from the Pilot knob, Missouri.—From the same.

Cytherea chione. Helix pisana, H. vermiculata, Unio pictorum, Natica nullepunctata, a Cardita and a Melanopsis;

from Italy. Also five specimens of lava, from Italy.—From Dr. M. Burrough.

15 species of Plants, (including a new species of Saxifraga,) collected by A. Gray and I. Carey, in the mountains of North Carolina and Virginia.—Presented by Asa Gray, M. D.

DONATIONS TO LIBRARY.

Lecture on the connection and reciprocal influence between the Brain and Stomach. By Usher Parsons, M. D., 8vo. 1841. From the Author.

Notes on a Tour to the White Hills. By G. W. Southwick. 8vo. From the Author.

WRITTEN COMMUNICATIONS.—Dr. Morton read a description of two new species of Fossils from the lower cretaceous strata of New Jersey.

PINNA.

P. rostriformis.—Shell thin, elongated, narrow, smooth, but gently undulated from the beak to the opposite extremity.

This fossil is not uncommon in fragments in the cretaceous limestone of Timber Creek, in Gloucester county, New Jersey; but this instance is the first which has occurred sufficiently perfect for description. I have referred to it in my "Synopsis of Organic Remains," page 63, but did not then venture to give it a specific designation. The specimen now in question was found and kindly lent me by Mr. Conrad.

CIDARITES.

C. splendeus.—Scutellæ pentagonal, granulated at the margin, between which and the papilla the surface is smooth and

sub-conical. Scutellæ in pairs? separated by longitudinal, granulated, slightly curved bands. Spines elongated, longitudinally granulated, and attached to the papillæ by numerous very small, flattened appendages.

Found with the preceding fossil in the cretaceous limestone of New Jersey.

A communication was read from Oliver P. Hubbard, Esq., acknowledging the receipt of a letter announcing his election as a correspondent of the Academy.

Mr. John S. Phillips stated that the Helix described by him at page 27 of these Proceedings, with the specific name of *bidentifera*, is the *H. barbula* of Rossmasler, a Portuguese shell. Mr. P. was led into an error in respect to its locality by the gentleman from whom he received it, and consequently described it as new.

STATED MEETING, DECEMBER 14, 1841.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

Essai sur les Soulevemens Jurassiques du Parrentury. Par J. Thurmenn. 4to. Paris, 1832.—From the Author.

Illustratious of the affinity of the Latin language to the Celtic of Scotland. By B. T. Stratton. 4to. 1840.—From the Author.

The Phytologist, a Botanical Journal. 8vo. No. 1. London, 1841.—From Prof. J. W. Bailey.

Transactions of the American Philosophical Society. Vols. 4 and 5, complete.—From the Society.

Notice of a model of the western portion of the Schuylkill or southern coal field of Pennsylvania. By R. C. Taylor. 8vo.—From the Author.

Observations on the Ergot of Rye and some other grasses. By Edwin J. Quekett, Esq. 4to. 1838.—From Prof. J. W. Bailey, of West Point.

The Copper plates of Haldeman's Limniades, as far as published, viz: genus Limnæa, plates I. to XI., and Paludina, Nos. 1 to 10.—Presented by S. S. Haldeman, Esq., who reserves to himself the right of taking such impressions as he may hereafter require.

A Letter was read from Dr. T. Romeyn Beck, soliciting for the Albany Institute several missing numbers of the Society's Proceedings.

Dr. Morton communicated the results of the measurements of forty-five adult negro crania, in order to ascertain the internal capacity of the skull and consequent size of the brain in the African race. These skulls were those of negroes born in Africa, of the Bassa, Grabbo, Makoua, Benguela, Mina and other tribes. They consist of 25 males and 20 females, varying from 18 to 50 years of age. The largest heads in the series, three in number, give ninety-nine cubit inches of internal capacity; the smallest head, that of a Makoua, 68 cubic inches. The mean of the whole series gave eighty-five cubic inches.

Dr. Morton added, that he was not yet prepared to give a decided opinion in relation to the comparative size of the European and Negro brains, but so far as his observations had gone, he believed the former would be found to exceed the latter by at least seven cubic inches.

The measurements adverted to give the absolute size of the brain, and were conducted on the plan described at page 7 of these Proceedings.

STATED MEETING, DECEMBER 21, 1841.

VICE PRESIDENT MORTON in the Chair.

WRITTEN COMMUNICATIONS.—A letter was read from the Rev. William Coggswell, corresponding Secretary of the Northern Academy of Arts and Sciences, at Hanover, New Hampshire, soliciting for that Institution a portion of the published transactions of this Society. Whereupon the committee

of publication were instructed to furnish Dr. Coggswell with volumes VI. and VII., and Part I. of Vol. VIII., together with the Proceedings of the Academy as far as published.

A letter was also read from Dr. Edwin Fussell, dated Pendleton, Indiana, December 5th, announcing that he had transmitted a box of Fossil Organic remains for the cabinet of the Academy, and tendering his services in collecting in several other departments of Natural History.

The chairman then called the attention of the members to the importance of publishing, without delay, and in accordance with a former resolution, the second part of vol. VIII. of the Journal of the Academy. He stated that several highly important memoirs awaited the Society's acceptance, which together with those already in the hands of the committee, were amply sufficient to form a half volume.

ANNUAL MEETING OF BUSINESS,

DECEMBER, 28, 1841.

VICE PRESIDENT MORTON in the Chair.

The Society first heard the reports of the Recording and Corresponding Secretaries, the Treasurer, the Librarian, and the Committee of Publication, all which were adopted.

The Society ther proceeded to the election of officers for the coming year, whereupon the tellers reported the following result:

PRESIDENT.

William Hembel.

VICE PRESIDENTS.

John Price Wetherill,
Samuel George Morton, M. D.

CORRESPONDING SECRETARY.

Walter R. Johnson, A. M.

RECORDING SECRETARY.

William S. Zantzinger, M. D.

TREASURER.

George W. Carpenter.

LIBRARIAN.

Alfred Langdon Elwyn, M. D.

CURATORS.

William S. Vaux,
John S. Phillips,
George C. Leib, M. D.
Samuel Ashmead.

AUDITORS.

William S. Vaux,
A. D. Chaloner, M. D.
Robert Pearsall.

PUBLICATION COMMITTEE.

Alfred L. Elwyn, M. D.
William S. Vaux,
John S. Phillips,
William S. Zantzinger, M. D.
Edward Hallowell, M. D.

The Society then proceeded to ballot for members and correspondents, when Clark Hare, Esq. of Philadelphia, was elected a member, and George R. Gliddon, Esq., late United States Consul for the city of Cairo, in Egypt, was elected a corresponding member of the Society.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. I. JANUARY, 1842. No. 10.

STATED MEETING, JANUARY 4, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO CABINET.

A collection of Bird Skins, from the vicinity of New Harmony, Indiana.—Prepared and presented by Mr. Charles Twigg, of that place.

Flower of Zamia integrifolia, from Florida.—From Dr. J. Carson.

Numerous specimens of Anculosa dissimilis, and Melania virginica, from the Susquehanna river.—From the Rev. James M'Farland.

WRITTEN COMMUNICATIONS.—Letters were read from Dr. Dunglison, secretary of the American Philosophical Society, and from Dr. E. S. Dixwell, secretary of the Boston Society of Natural History, acknowledging the receipt of the Academy's Proceedings.

VERBAL COMMUNICATIONS.—Dr. G. C. Leib remarked, that in looking over Dr. Giraud's work entitled "Sixteen New Species of Birds," he found the Parus leucotis of Giraud, to be identical with the Setofaga rubra of Swainson.

Professor Johnson made some observations on the spontaneous combustion of Bituminous Coal.

He stated that he had recently been invited to inspect a heap of bituminous coal on the premises of Mr. John W. Middleton of this city, which had for a few days previous been observed to be growing warm and giving off vapour very copiously, from which it was inferred to be approaching spontaneous combustion. The coal in question was stated to be from the Allegheny mountain, above Holidaysburg, and to be a mixture of two or three different mines. On causing a hole to be excavated about three feet deep, the temperature was found to be 110 Fahrenheit; and the day being cold, (below freezing point) the volume of steam which arose on moving the coal was so great as almost completely to envelope and hide the workmen. All parts of the heap were observed to exhibit distinct traces of the effloresced sulphate of iron; or if some pieces of the coal had no visible marks of this kind, they still exhibited to the sense of taste the strongest evidence of being covered with that salt.

This coal evidently possessed all the requisites for producing spontaneous combustion, and only required time, and perhaps a rather larger heap, to bring that process to the same termination as was observed a few weeks since in the city of Lowell.

The chairman having announced the demise of our venerable associate John Vaughan, Esq., on motion of Professor Johnson, it was unanimously

Resolved,—That this Society have heard with deep regret, the announcement of the decease of their late valuable member, John Vaughan, Esq.,—so long known in our community for his various merits, both in relation to scientific objects and to benevolent purposes and institutions; and they would by this act testify their

high estimation of those excellent traits of character by which their deceased fellow member was so eminently distinguished.

Resolved,—That the Corresponding Secretary communicate to the family of the deceased, a copy of the foregoing resolution.

STATED MEETING, JANUARY 11, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Forty species of Fossil Shells of the newer Pliocene beds at Uddevalla in Sweden. From Dr. Morton.

Ammonites obtuses, A. Parkinsonii and A. communis, from the Lias of Lyme Regis, England. Presented by Dr. Morton.

Perca (Percina) minima, and P. nebulosa, (Haldeman) from the Susquehanna river. From Mr. S. S. Haldeman.

Two species of Fuligula minor (Giraud,) or Scaup Duck. Presented by Mr. J. G. Bell, of New York.

WRITTEN COMMUNICATIONS.—A communication was read from Mr. Haldeman, describing two new species of the genus Perca, from the Susquehanna river, viz. P. nebulosa, and P. minima; which was referred to a committee.

A letter was read from Mr. J. G. Bell, of New York, dated January 8th, in which he offers some remarks on the two specimens of Fuligula minor, or lesser Scaup Duck, presented by him this evening. He states, that they have hitherto been mistaken for the common Scaup Duck, (Anas marila of Wilson); and although Mr. Audubon figures this bird, and Wilson the larger one, these naturalists had supposed them to be spe-

cifically the same. He adds, that Mr. Audubon has now compared these two ducks, and is satisfied that they are distinct species.

Mr. T. A. Conrad read a paper intended for publication in the Journal, entitled, "Observations on the Silurian and Devonian systems of the United States, with descriptions of New Organic Remains." This memoir embraces descriptions of 103 new species, included in 21 genera, viz.

Avicula—23 species. Cypricardita, 6. Inoceramus, 3. Microdon, 1. Moculites, 2. Plurorynchus, 3. Strophomena, 21. Delthyris, 13. Orthis, 1. Atrypa, 6. Helicoceras, 1. Orthoceras, 1. Goniotites, 1. Belerophon, 3. Pleuratomaria, 7. Euomphalus, 1. Loxonema, 1. Cyrtoceras, 1. Asaphus, 2. Calymene, 1.

The paper was referred to a committee with a view to immediate publication in the 2d part of the 8th volume of the Academy's Journal, now in press.

Professor Rogers announced that his brother Professor William B. Rogers, of Virginia, has recently satisfied himself of the geological age of the coal formation of the vicinity of Richmond; and also of the date of the Fredericksburgh sandstone. The former he regards as nearly equivalent in period to the lias of Europe, and the latter to be referable to that of the oolite. The existence in the Richmond coal measures of the genus Tæniopterus, a race of plants strictly characteristic of the lias, is one of the points upon which he rests his conclusions respecting that formation. A discovery in the Fredericksburg sandstone of fossil cycadeæ and other organic remains, lead him to place this rock in the period of the oolites. He considers those the only formations yet recognised in the United States, which are referable to the ages of the European Lias and Oolite rocks.

STATED MEETING, JANUARY, 18, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

History of the Island of St. Helena, to the year 1823. By T. H. Brooke, Esq. 8vo. London, 1824. From George D. Blaikie, Esq.

American Journal of Science and Arts, No. 42, for January, 1842. From the Editors.

Proceedings of the American Philosophical Society, for November and December, 1842. From the Society.

Vertebra of Icthyosaurus and parts of the paddle bones of the same reptile, from the Lias of Lyme Regis, England: also Vertebra of the Plesiosaurus, and a Pentacrinites, from the same strata. Presented by Dr. S. G. Morton.

WRITTEN COMMUNICATIONS.—Mr. Haldeman read a paper on three new species of Unionidæ, from the waters of the United States, viz. Unio abacus, U. puniceus, and Anodon plicatus. Referred to a committee.

Mr. Conrad read some additions to his paper on the Silurian and Devonian Fossils read at the last meeting; which was referred to a committee.

Mr. Conrad also read a memoir, "on the Identity of the Middle Cretaceous Formation of the United States, with the Faxoe limestone of Europe."

Mr. Conrad stated as the result of mature observation and reflection, that the medial division of the American cretaceous strata, as seen on Timber creek, in New Jersey, are of the same age

with the white chalk of Europe, as maintained by Dr. Morton. He announced the discovery at that locality, of a Planularia, a multilocular shell characteristic of the European chalk. Mr. Conrad has also detected in the medial cretaceous beds at Wilmington, North Carolina, the Cirrus perspectivus, a Nautilus which he believes to be the N. Danicus, and the Cypræa bullaria; the last two being characteristic of the Faxoe limestone.

Mr. Conrad's paper being designed for publication, was referred to a committee.

VERBAL COMMUNICATIONS.—Professor Johnson stated the results of some experiments on the magnetism of bars of wrought iron broke by tensile force.

He referred to a former communication, in which he had given an account of trials on cast iron in a state of fusion, and to the influence of terrestrial magnetism, inducing the magnetic state in bars of iron, according to the position in which they are placed with reference to the magnetic axis. He had found that when a bar of soft iron is drawn asunder at ordinary temperatures, and in the direction of the magnetic meridian, there was also manifested at the point of fracture a decided evidence of magnetic polarity; and that the kind of magnetism was that belonging to the region towards which the broken extremity of each fragment pointed. This magnetic condition was indicated by the adhesion of any particle of iron or of hammer cinder, which chanced to be near the fracture at the moment, as well as by the action of a small needle when held near the point.

If the two extremities separated from each other by a short distance, be at the moment of fracture in contact with a mass of iron filings, the latter will adhere to the two ends, and extending across, form a continuous line or bridge, which appears to serve as a keeper, for they continue for a considerable time with little diminution of their force.

When the fracture is made at a red heat, little or no magnetic effect appears to result from the action of breaking. But when

the temperature of the bar is between five and six hundred degrees of Fahrenheit, the magnetism is not only marked at the time, but is in a great degree permanent. Samples were stated to have been examined, which had been broken for several years, and to be still in the same magnetic state in which they were at the moment of fracture.

In order to prove what part of the effect in the foregoing instances, was due to the earth's magnetic influence, the proving machine which produced the fracture, was changed in position, so as to place the bar, in proving, directly across the magnetic meridian, instead of coinciding with it as before. In this case no polarity was observed, whether the bars were broken cold or hot, except some slight indications in a direction across the breadth of the bar at the point of fracture.

MEETING FOR BUSINESS.

JANUARY 25TH, 1842.

VICE PRESIDENT MORTON in the Chair.

Reports of Committees.—The Committee to whom was referred Mr. S. S. Haldeman's paper on two new species of the genus Perca, reported in favour of publication in the Journal.

The committee on Mr. Conrad's memoir on new species of Silurian and Devonian fossils, with geological observations,—and a second memoir on the Contemporaneousness of the Middle Cretaceous strata of the United States with the Faxoe limestone of Europe, reported in favour of publication in the Journal.

The Corresponding Secretary's report was also read and adopted.

The Society then by an unanimous vote, conferred a LIFE MEMBERSHIP on Mrs. L. W. Say, elected a member October 26th, 1841.

On motion, the Committee on the Proceedings of the Society was instructed to republish 250 copies of No. 1.

The Society then proceeded, in conformity with a provision of the By-laws, to elect Standing Committees on the different branches of Science, and a Library committee for the present year; whereupon the tellers reported the following result:

MINERALOGY AND GEOLOGY.

J. Price Wetherill, T. A. Conrad,
S. G. Morton, M. D. A. D. Chaloner, M. D.
William S. Vaux, Joseph A. Clay,
W. R. Johnson.

ZOOLOGY.

S. G. Morton, M. D. Edward Hallowell, M. D.
William S. Vaux, Robert Pearsall,
John S. Phillips, Edward Harris,
George C. Leib, M. D.

BOTANY.

James Read, Robert Bridges, M. D.
W. S. Zantzinger, M. D. Gavin Watson, M. D.
John Simmons.

PHYSICAL SCIENCE.

Edmund Draper, P. B. Goddard, M. D
Isaiah Lukens, W. R. Johnson,
John S. Phillips.

LIBRARY.

S. G. Morton, M. D. Henry F. Leib, M. D.
R. Bridges, M. D. J. S. Phillips,
Joseph Carson, M. D.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. I. FEBRUARY and MARCH, 1842. Nos. 11, 12.

STATED MEETING, FEBRUARY 1, 1842.

MR. PHILLIPS in the Chair.

DONATIONS TO MUSEUM.

A collection of casts of American Trilobites and other Fossils, presented by Mr. Joseph Brano, of Philadelphia, consisting of 78 specimens of the following genera and species.

Calymene Blumenbachii (2 specimens.)
——— callicephala.
——— selenecephala.
——— platys.
——— micropa.
——— anchiops.
——— diops.
——— macropthalma, (2 specimens.)
——— bufo.
——— bufo, var. rana, (2 specimens.)
——— odontocephala.
Calymene phlyctainoides.
——— Rowii.
Asaphus laticostatus.
——— selenurus, (2 specimens.)
——— limulurus.
——— caudatus.
——— Hausmanni.
——— pleuroptyx.
——— micrurus.
——— Wetherillii, (2 specimens.)
——— astragalotes.
——— tetragonocephalus.
——— myrmecophorus.

Asaphus micropleurus.
——— Trimblii.
——— odontocephalus.
——— Debuchii, (3 specimens.)
——— nasutus, (4 specimens.)
Trimerus platypleurus.
——— Jacksonii.
——— delphinocephalus.
Nuttainia sparsa.
Gryphœus Boothii.
——— callitelus, (2 specimens.)
Acidopsis tuberculatus.
Scaphites Cuvieri.
Ammonceratites Conradi.
Isoteles gigas, (3 specimens.)
——— planus.
——— cyclops.
Isoteles megalops.
——— stigops, (2 specimens.)
Cryptolithus tesselatus.
Dipleura Dekayi, (4 specimens.)
Hemicrypturus Rasoumowski.
Ceraurus pleurexanthemus.
Dicranurus hamatus, (2 specimens.)
Triarthrus Beckii.
Illænus.
Aspidolites.
Clypeaster geometricus.
Acantholama, (2 specimens.)
Tooth of mosasaurus.
Paradoxides Boltoni, (2 specimens.)
——— Harlani.

A specimen of Skiolithos, from N. York. Presented by Mr. S. S. Haldeman.

Chamæleo gracilis, (Hallowell,) in spirits. From Dr. Wm. Blanding.

DONATIONS TO LIBRARY.

Monograph of the Trilobites of N. America, by Jacob Green. 12mo. Presented by Mr. Jos. Brano.

Mammalogy, Second Book of Natural History, by W. S. W. Ruschenberger, M. D. 12mo. From the Author.

A brief description of Agaricus atramentarius, by John Redman Coxe, M. D. 8vo. From the Author.

Histoire des progres de l'esprit humain dans les Sciences Naturelles. Par M. Saverien. From Mr. S. S. Haldeman.

Histoire naturelle de l'Ile de Cuba, par M. Ramond de la Sagra. Nos. 19, 20, 26, 27, 28 and 29. Folio. Presented by Messrs. J. P. Wetherill, J. S. Phillips, S. G. Morton, A. L. Elwyn, W. S. Vaux, J. A. Clay, and G. C. Leib.

Proceedings of the Zoological Society of London. Part 8. 1840. From the Society.

WRITTEN COMMUNICATIONS.—The Corresponding Secretary read a letter from Dr. T. W. Harris, dated Cambridge, Mass., January 26th, 1842, stating that he had shipped per the Benj. Franklin, a portion, (probably the most valuable part,) of the Society's collection of Insects.

Dr. Morton read a paper entitled "Description of some new species of organic remains of the Cretaceous group of the United States, with a tabular view of the fossils hitherto discovered in this formation;" being a revision of, and an addition to, a paper read Oct. 12th and Nov. 7th, 1841.

Referred to a committee consisting of Messrs. Conrad, Ashmead and Phillips.

Mr. Haldeman read a paper on the changes of nomenclature in Natural History.

Referred to Messrs. Morton, Conrad and Phillips, as a committee.

BUSINESS BY SPECIAL RESOLUTION.

Dr. Morton read a proposition from Mr. Jas. H. Roome, in relation to mounting the birds and quadrupeds of the Academy now in skin. Laid on the table.

Dr. Morton offered the following resolution which was adopted.

Resolved,—That Mr. Joseph Brano be permitted, under the supervision of the Curators, to take casts of the unique specimens in the geological collection of the Academy, provided that no specimen be removed from the Hall.

STATED MEETING, FEBRUARY 15, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Several specimens of vegetable Ivory, derived from the fruit of the Doma plant. Presented by Mr. G. Gardom through Professor Johnson.

DONATIONS TO LIBRARY.

Journal of the Asiatic Society of Bengal. Nos. 106 to 113, inclusive. From the Society.

Monograph of the Limniades, or fresh water univalve shells of North America. No. 4. By S. S. Haldeman. 1842. From the author.

Description du Puit Artesièn de Grenelle. From Mr. Isaac Collins of Philadelphia.

NEW BUSINESS.

Mr. Ashmead, from the curators, announced the reception in the Hall, from Dr. Harris, of Cambridge, Mass., of that portion of the Academy's collection of Insects referred to in his late letter.

On motion of Dr. B. H. Coates, the Zoological committee were directed to examine into the condition of this collection, and to report at the next meeting of business.

BUSINESS BY SPECIAL RESOLUTION.

The chairman, by special leave, presented a communication from the Treasurer of the Academy, stating that the

balance of the late Wm. Maclure's subscription to the Academy, amounting to $6000. had been received from his brother and executor, Alexander Maclure, and that the same had been appropriated to the payment of various claims on the Institution, the details of which were given.

Whereupon the following resolutions, offered by Prof. Johnson, were unanimously adopted :

Resolved,—That the Academy has received with lively satisfaction the announcement this evening made by the Treasurer, of the receipt of $6000, on account of the second subscription of $10,000 by our late President, William Maclure, Esq., deceased, towards the erection of the new Hall; and of its application to the final extinguishment of claims on account of the building, and to an important reduction in the obligations for the purchase of the ground now the property of the Institution.

Resolved,—That the thanks of the Academy are due to Alexander and Anna Maclure, executors of the will of their late brother William Maclure, for their praiseworthy efforts in carrying out the designs of the deceased, in advancing the interests and prosperity of this Institution, and thereby promoting the cause of Science, to which so much of his liberality, and so large a portion of his life, were devoted.

On motion of Mr. Clay, Resolved, that a copy of the foregoing resolutions be transmitted to Alexander Maclure, Esq.

STATED MEETING, MARCH 1, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Casts of three species of Ammonites: viz. A. abyssinus, A. Nicolletii, and A. Mandanensis. Presented by S. G. Morton, M. D.

DONATIONS TO LIBRARY.

Bulletin de la Societé Imperiale des Naturalistes du Moscou. Nos. 6. 7 and 8. 1837. From the Society.

Annales des Mines. Livs. I. II. and III. Tome XIX. In exchange.

Promenade au Mont Dore, &c. Par M. Nereé Boubé, Professeur a Paris. From the Author.

Report of the commissioners for the exploration and survey of the boundary line between Maine and New Hampshire, and the adjoining British Provinces; by Major J. D. Graham, U. S. Topographical Engineer. From Col. J. J. Abert.

WRITTEN COMMUNICATIONS.—The chairman presented a communication from J. J. Audubon, Esq. and J. Bachman, D. D., containing descriptions of several new species of North American quadrupeds, of the genera Vespertilio, Mus, Sorex, Sciurus and Spermophalus; which was referred to the committee on previous communications of these gentlemen.

A paper from Mr. S. S. Haldeman was read by Mr. Phillips, entitled "A description of a new species of Cyclops, and two new species of Tubifex:" and another from the same author, containing additional remarks on changes of nomen-

clature in Natural History; both of which were referred to the committee on Mr. Haldeman's previous paper read Feb. 1, 1842.

BUSINESS BY SPECIAL RESOLUTION.

The chairman called the attention of the Society to several papers on scientific subjects, offered at previous meetings, which had not been referred to appropriate committees, and suggested some action thereon.

On motion of Dr. Elwyn, the subject was then brought before the meeting, and the communications alluded to were referred, as follows:

A paper by Walter R. Johnson, "On the relation between the coal of South Wales and some Pennsylvania anthracites," read June 15, 1841; and another by the same author, entitled, "Description of an apparatus illustrative of the laws of chemical combination, and of the combining volumes of gaseous substances," read Nov. 23d, 1841: referred to Messrs. Draper, Lukens and Phillips.

A description of the nest and eggs of Fulica Americana, and Anas discors, by Geo. C. Leib, M. D, read Nov. 16th, 1841. Referred to Messrs. Vaux, Burrough and Morton.

Two communications by S. G. Morton, M. D., one containing remarks on the so-called Pigmy race of the valley of the Mississippi, read Nov. 16th, 1841, and the other on the ancient Peruvian race: referred to Messrs. McMurtrie, Phillips and Bridges.

The following reports, omitted at the last meeting for business, were then read and accepted.

The report of the committee on Mr. Haldeman's paper on several new species of Unio; and the report of the committee on Dr. Morton's paper, on some new species of organic remains of the cretaceous group of the United States, &c., both in favour of publication.

STATED MEETING, March 8, 1842.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Six specimens of Corallines and Crustacea, from the secondary strata of Faxoe in Denmark. Teeth of Icthyosaurus, Hybodus and Acrodus, from the Lias of Lyme Regis, England. Scales of Fishes from Purbeck beds, Swanage, England. Terebratulæ from the red chalk of Lincolnshire, England, and an Orthocera, from Kinnekulla, Sweden. All presented by S. G. Morton, M. D.

The following collection of valuable shells, chiefly from the Phillippine Isles, was presented by Dr. Goddard, viz.

Venus castrensis, V. litterata. Corbis fimbriata. Tellina latirostra. Pecten pallium. Helix galactites, H. pulcherrima, H. annulata, H. Valenciana, H. Roissiana Var. and 7 other species. Caracolla Listeri. Bulimus ovoideus, B. chrysalidæformis, B. Hindorensis. B. coccineus, and 5 other species. Auricula Judæ, A. scarabæus. Pupina —— sp.? Cyclostoma Indica, and two other species. Ampullaria ovata. Turbo petholatus. Monodonta labeo. Scalaria pretiosa. Nerita Ascensionis, N. polita. Natica spadicea, N. chinensis, N. mamilla, N. melanostoma. Neritina ——. Bulla naucum, B. Ampulla.

Ovula oviformis, Pirena terebralis. Dolium perdix. Triton anus, T. clavator. Ranella ranina. Ricinula horrida. Strombus canarium, S. minutus. Cancellaria senticosa. Cerithium vertagus. Terebra dimidiata, T. crenulata. Nassa arcularia. Cassis vibex. Cypræa eburnea. Mitra

episcopalis, M. retusa, M. corrugata, M. aurantiaca, M. melongena.

Oliva carneola. Conus capitaneus, C. stercus muscarum, C. raphanus, C. magus. Phasianella angulata. Patella vulgata.

Two specimens of Fossils from Gloucester county, N. Jersey. a Sphiræna? and a Buccinum. Presented by Dr. W. Blanding.

WRITTEN COMMUNICATIONS.—The chairman read a memoir from Dr. A. Clapp of New Albany, Indiana, on the Limestone formation of that district. Referred to a committee consisting of Mr. Conrad, Prof. Rogers and Mr. Vanuxem.

VERBAL COMMUNICATIONS.—Prof. Johnson presented for inspection, a portion of the kelson of the frigate Raritan, in a state of dry rot. This vessel was still on the stocks at the Philadelphia Navy Yard: her building having been commenced at least 20 years since. She had been salted. Her lower timbers, previous to the commencement of repairs, were generally in the same condition as the portion exhibited.

Also a sample of oak joist from the old Legislative Hall, built at Chester, Pennsylvania, in 1682. Decay had not yet commenced in this wood, owing probably to its complete protection from the action of moisture; whereas in the other case, the wood was constantly subjected to the alternate action of dryness and moisture.

Professor Johnson also alluded to the hardening influence of water on oak wood when long submerged.

Dr. Chaloner stated that he had in his possession specimens of oak timber turned into various forms, which had been derived from a vessel, (the Lyons frigate,) submerged in the river Delaware since the period of the Revolution, and which had acquired almost the hardness of iron.

Professor Johnson then exhibited samples of residua from

a number of Anthracite and Bituminous coal of Europe and this country, on which he had experimented with a view of ascertaining the relative proportions in each, of volatile matter, earthy matter, and carbon. The experiments were performed on all in a similar manner, viz. by exposing the coal to a red heat, raised as rapidly as possible. As the moisture, however, is in such cases brought in contact with carbon at a high temperature, it may, by decomposition, cause some of the carbon to be carried off, and thus raise the estimate of the volatile matter above what it would be, if more slowly conducted. Incineration was conducted in a muffle, at a high and long continued temperature.

The following are the results of the analysis of some of these coals:

	Vol. matter.	Ashes.	Carbon.
Newcastle coal, per cent.	29.	.44	70.56
Sydney,	43.5	1.50	55.
Liverpool,	37.9	.72	61.38
Staffordshire,	47.5	1.86	50.64
Welsh,	4.4	4.1	91.5
Pictou,	30.7	8.	61.3
Richmond,	15·1	24.74	60.16
Do. (another sample,)	17.3	17.08	65.62
Rhode Island,	13.1	11.26	75.64
Fallstown, (Beaver river,)	35.8	6.42	57.76
Beaver Meadow, (spheroidal coal,)	9.	5.50	85.5
Shamokin,	9.1	5.84	85.06
Wilkesbarre,	8.6	11.66	79.74
Beaver Meadow, (Piatt tract,)	7.9	6.	86.1

Dr. Chaloner referred to the question agitated of late among medical men, whether muscular action could excite electricity, and cited the case of a lady, described in Silliman's Journal; a similar instance had come under his own notice in this city.

As connected with this subject, Professor Johnson mentioned that some years since, he had made experiments with a delicate magnet, in suspension, and discovered that by bringing the hands nearly in contact with each other, and then carefully withdrawing them in opposite directions, the fingers of the different hands, when approximated to the magnet, produced different effects.

BUSINESS BY SPECIAL RESOLUTION.

By special permission, the reports of the following committees were read and adopted.

The report of the committee on Dr. Morton's paper on the so-called Pigmy race of the Valley of the Mississippi, and also his paper on the ancient Peruvian race: in favour of publication.

The report of the committee on Prof. Johnson's paper entitled "Remarks on the relation between the Coal of South Wales and some Pennsylvania Anthracites;" and also his "Description of an apparatus illustrative of the laws of Chemical combination, and of the combining volumes of gaseous substances;" in favour of publication.

Dr. Elwyn offered the following resolution, which was adopted:

Resolved,—That the Committee of Publication be authorised to present to Charles Lyell, Esq., Corresponding member, the sixth volume of the Journal of the Academy.

STATED MEETING, MARCH 15, 1842.

DR. MCMURTRIE in the Chair.

DONATIONS TO MUSEUM.

Vertebra of a shark from New Egypt, N. Jersey, and a specimen of Exogyra costata, from Woodward's farm, N. Jersey. Presented by Dr. Chaloner.

DONATIONS TO LIBRARY.

Fourth Report of the Geological survey of New Brunswick, by Abraham Gesner, M. D. From the Author.

Boston Journal of Natural History. Vol. 4th, No. 1. From the Society.

Three pamphlets by Dr. Morton, viz: "Description of some new species of Organic Remains of the Cretaceous group of the United States;" "Remarks on the so-called Pigmy race of the Valley of the Mississippi;" and "Remarks on the ancient Peruvian race." Presented by the Author.

WRITTEN COMMUNICATIONS.—Dr. Morton read a letter from Mrs. Lucy W. Say, dated March 14th, 1842, acknowledging the receipt of her notice of election as a life member of the Academy.

VERBAL COMMUNICATIONS.—Dr. Goddard stated that he had successfully repeated an improvement in M. Daguerre's process, by which an instantaneous impression of the object may be taken; consisting in applying a spark of electricity to the back of the plate. The positive spark appeared to be more effectual than the negative.

STATED MEETING, MARCH, 22, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Iridina rubens, Carinaria Mediterranea, Janthina bifida. From Dr. J. C. Jay, of New York.

Venus tigerina. Presented by Mr. Simmons.

WRITTEN COMMUNICATIONS.—A communication from Dr. Dunglison, Secretary of the American Philosophical Society, dated March 18th, 1842, acknowledging the reception by the Society, of No. 10 of the Proceedings of the Academy.

The chairman read a communication from Mr. S. S. Haldeman, and designed for publication in the Proceedings of the Academy, describing two new species of the genus Cypris and a genus of Sterelmintha, presumed to be new. Referred to a committee, viz. Messrs. McMurtrie, Conrad and Goddard.

MEETING FOR BUSINESS, MARCH, 29TH, 1842.

VICE PRESIDENT MORTON in the Chair.

The Monthly Report of the Corresponding Secretary having been read and adopted, reports were presented from the following committees.

The committee on Dr. George C. Leib's paper entitled, "Description of the Nest and Eggs of the Fulica Americana and Anas discors," in favour of publication.

The committee on Mr. Haldeman's paper "On two new species of Cyclops;" in favour of publication.

The committee on the several papers of Mr. Audubon and Dr. Bachman, entitled "Descriptions of new species of North American Quadrupeds;" in favour of publication.

The Zoological Committee then read the following Report in relation to the condition of the collection of Insects lately returned by Dr. T. W. Harris; which was ordered to be published in the Proceedings of the Academy.

The Zoological Committee report, that they have examined the collection of insects belonging to the Academy, which

was sent to Dr. T. W. Harris, of Cambridge, Mass., in the year 1837, for the purpose of being re-arranged, determined, and having the specimens of Mr. Thomas Say intercalated in their appropriate places, and find that the insects have been returned in so confused and ruined a condition as to render them almost valueless; that there is not a single insect determined, except those by Dr. McMurtrie prior to the collection having been sent to Dr. Harris, and that the species in Mr. Say's collection have been in no instance intercalated.

They further report, that as the greatest care was taken in the carriage of the cases from the vessel to the Hall of the Academy, on hand-barrows, the specimens could have sustained no injury subsequent to their arrival in Philadelphia.

The committee cannot refrain from expressing their regret that if Dr. Harris, for whatever cause, declined the fulfilment of his engagement to the Academy with respect to this collection, that he did not at once return it, in order that it might receive such attention as would have secured its value unimpaired; especially since he was duly notified of various resolutions and inquiries, expressive of the anxiety felt for its safe return.

On behalf of the committee,

J. S. PHILLIPS,
EDW. HALLOWELL,
WM. S. VAUX,
ROBT. PEARSALL.

Hall of the Academy,
March 29th, 1842.

The Society then proceeded to ballot for Members and Correspondents, when the following gentlemen were announced duly elected :

MEMBER.

Charles Davis, M. D., of Philadelphia.

CORRESPONDENT.

J. Hutton Balfour, M. D., Regius Professor of Botany in the University of Glasgow.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. I. APRIL and MAY, 1842. Nos. 13, 14.

STATED MEETING, APRIL 5, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

Remarks upon Coral Formations in the Pacific, with suggestions as to the causes of their absence in the same parallels of latitude on the coast of South America. By Joseph P. Couthouy. Boston, 1842. From the Author.

The Creation of Light; an extract from an unpublished work, 'The Philosophy of Generalization.' By Thomas Fisher. From the author.

Transactions of the American Philosophical Society. Vol. 8. Part 1st. New Series. From the Society.

Annales des Mines, IV^e^ Livraison de 1841. Tome XX. In exchange.

American Journal of Science and Arts. Vol. XLII. No. 2. April, 1842. From the Editors.

Complete sets of the copperplates belonging to Audebert and Vieillot's valuable work "L'Oiseaux Dorés:" and to Vieillot's "L'Oiseaux de l'Amerique Septentrionale:" the whole comprising 314 Plates, in good condition. Presented by Alexander Maclure, Esq.

WRITTEN COMMUNICATIONS.

Dr. Zantzinger presented a tabular statement of Meteorological observations, for the year 1841: which was referred to Messrs. Goddard, Lukens, and Johnson.

Dr. Hallowell read a paper intended for publication, entitled, "Description of a new genus of Serpents from Western Africa," to which he has given the name of Distichurus, founding it on a single species, D. maculatus, described in the paper. Referred to Messrs. McMurtrie, Morton, and Haldeman.

BUSINESS BY SPECIAL RESOLUTION.

Mr. Phillips offered the following, which was adopted:

Resolved,—That the Corresponding and Recording Secretaries be, ex-officio, members of the Committee on Proceedings.

Dr. Morton having stated that his valuable collection of Crania, contained in a lower room of the building, had sustained some injury from the dampness of the apartment, and that it would be necessary to remove them, a resolution was adopted by the Society, authorising him to have cases erected in the North flying-gallery of the Hall, for the purpose of accommodating the collection, the expense of the same to be defrayed in part by the Society.

STATED MEETING, April 12th, 1842.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

A specimen of Zygæna tiburo from the coast of Florida. Presented by Dr. Wm. Blanding.

DONATIONS TO LIBRARY.

Sixth geological report to the 24th General Assembly of the State of Tennessee. By Gerard Troost, M. D. From Dr. S. G. Morton.

Whirlwind Storms—with a reply to the objections and strictures of Dr. Hare. By William C. Redfield. From the Author.

Descriptions of new species of Quadrupeds inhabiting North America. By J. J. Audubon, Esq. and J. Bachman, D. D. From the Authors. (Extr. from Jour. Acad. v. 8.)

STATED MEETING, April 19th, 1842.

Vice President Morton in the Chair.

Written communication.—Mr. Phillips presented a communication from J. G. Anthony, Esq. of Cincinnati, Ohio, transmitting a Catalogue of the Terrestrial and Fluviatile Shells of Ohio; which was ordered to be placed on file.

BUSINESS BY SPECIAL RESOLUTION.

By special permission, the committee on Dr. Hallowell's paper, read April 5th, describing a new genus of Serpents from Western Africa, offered a report in favour of publication, which was accepted.

A resolution was then adopted, urging the Zoological Committee to take immediate measures for the preservation of the remains of the collection of Insects lately returned by Dr. Harris.

MEETING FOR BUSINESS, APRIL 26th, 1842.

Mr. PHILLIPS in the Chair.

The Corresponding Secretary's Monthly Report was read and adopted.

The committee, consisting of Dr. McMurtrie, Mr. Conrad and Dr. Goddard, to whom was referred the following communication, reported in favour of publication in Proeeedings of the Academy.

Description of two new species of Cypris, and a genus of Sterelmintha presumed to be new. By S. S. Haldeman. Read March 22, 1842.

Cypris discolor. Elevated, base nearly straight, equally rounded at both ends: an irregular mottling of blackish immediately behind the eye; a rather smaller blotch of reddish brown at the anterior extremity, and a large one of the same color at the posterior extremity, occupying about one-fifth of the entire surface.

Variety. The central spot is sometimes reddish, and the posterior one divided into two. Length 0.5 millim.; heighth compared with the length, as 5 to 7. Hab.: in great abundance, a log-pond at the mouth of the Chicquesalunga, on the Susquehanna.

Cypris vitrea. Translucent, with a tinge of yellow, elongated, nearly straight both ends nearly alike, but the posterior slope is somewhat flattened: about one third of the heighth and length along the dorsal margin, is stained light green: eye obsolete: length 0.5 millim. Hab.: with the preceding, but is comparatively rare. Rather more slender than C. simplex, Hald.

Hydrolimax. Body slender, limaciform, parenchymatous, provided with vibrilæ (cilia) without tentacles or eyes, a posterior mucous pore? mouth subterminal, bellshaped when expanded. Lives upon mud at the bottom of quiet water: progression as in Limax.

Hydr. grisea. Half an inch long, mottled grey above; colorless below, and upon each side of the anterior extremity, where the grey of the back is suddenly narrowed. Hab.: with the preceding species. Bears a striking resemblance to a large grey Limax (L. togata, Gould), found in Pennsylvania and Virginia.

ELECTION.

Charles Ellet, Jr., of Philadelphia, was duly elected a member of the Academy.

STATED MEETING, MAY 3, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

Fifteenth annual report of the Regents of the University of New York. Albany, N. Y. 1841. From the Regents.

Catalogue des Lepidoptéres, ou Papillons de la Belgique. Par Edm. de Selys Longchamps. Leige, 1837. From the Author.

Notices sur les Libellulidées; extraites des bulletins de l'Academie Royale de Bruxelles. Par M. de Longchamps. Brussels, 1840. From the same.

Monographie des Libellulidées d'Europe. Par M. de Long champs. Paris, 1840. From the same.

Etudes de Micromammalogie: Revue des Musaraignes des Rats et des Campagnols. Par M. de Longchamps. Paris, 1839. From the same.

Essai Monographique sur les Campagnols des Environs de Leige. Par M. de Longchamps. From the same.

A Third memoir with reference to the law of storms in India. By Henry Piddington. Calcutta, 1841. From the Author.

Journal of the Asiatic Society of Bengal. No. 108. 1840. From the Society.

A Flora of North America. Vol. II. Part 2nd. April, 1842. By John Torrey and Asa Gray.

A Memoir of the Fossil Reptiles of the South-east of England. By Gideon Mantell, M. D. 4to. 1841. From the Author.

WRITTEN COMMUNICATIONS.

Letters were read—

From Mr. William Vaughan, dated London, March 5, 1842, stating that he had transmitted a parcel to the Academy, from the Linnean Society of London :

From M. de Longchamps, dated Liege, April 15th, 1841, in relation to the books presented this evening; and also expressing a wish to obtain Part. I. of Vol. VIII. of the Journal of the Academy. A list was likewise given of various insects and animals, which he was desirous of exchanging for similar objects of this country :

And from George R. Gliddon, Esq. dated New York, April 24, 1842, stating that he has presented to the Academy a collection of Geological and other specimens from Egypt : and also acknowledging the receipt of his notice of the election as Correspondent of the Academy.

VERBAL COMMUNICATIONS.

Dr. Chaloner stated, that he had been informed by a gentleman from Washington county, Pennsylvania, who had recently returned from Central America, and had there met with Messrs. Stevens and Catherwood, that these latter had discovered the remains of another city, covering an area of about six miles square.

The ruins were in a good state of preservation; and some specimens of sculpture brought thence by him, evince marks of much skill and beauty.

The beam of wood referred to in Stevens's Central America, and found in the ruins of Uxmal, was stated to be well preserved. The tree from which the wood is derived, is called by the natives Zapadillo. It is more durable than live oak or red cedar, sinks in water, and when polished, resembles 'Partridge wood,' but is darker and harder.

Dr. Chaloner made inquiry with regard to some Infusoria said to have been discovered in the green sediment of pools; and which are stated to possess the peculiar property of evolving oxygen gas under the influence of the sun's rays.

When examined by the microscope, they rose to the surface, emitted a bubble of gas and then subsided. This gas, collected in an inverted jar, was found on analysis to yield about 80 per cent. of oxygen.

Dr. B. H. Coates then made some remarks on the progress of discovery in relation to this class of animals; and called the attention of the members to the late work of Mr. Pritchard, and communicated some of the information which he had derived from this author.

Dr. Bridges remarked that, in relation to the first mentioned discovery, in the absence of more definite information, the facts which had been communicated would lead us to suppose that the subjects of observation were of a vegetable nature; since it is well known that vegetables under the influence of the sun's rays, evolve oxygen by the decomposition of carbonic acid, which is always present in the atmosphere and in water. He also alluded to the difficulty of discrimination between animal and vegetable bodies, especially in microscopic objects, and made reference to a paper on the Sponge, in one of the late numbers of the Transactions of the Linnean Society, to illustrate the great accuracy of observation required in these cases.

BUSINESS BY SPECIAL RESOLUTION.

The following resolution was adopted:

Resolved,—That the 8th Vol. of the Journal of the Academy be presented to M. de Longchamps.

STATED MEETING, May 10th, 1842.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

A fine collection of Quadrupeds and Birds prepared and mounted, principally from South Africa, presented by the following members, viz. J. Price Wetherill, G. W. Carpenter, W. S. Vaux, Wm. Hembel, S. G. Morton, Samuel Ashmead, and J. S. Phillips, comprising

Cynocephalus hamadryas, (dog-faced baboon) male.
Orycteropus capensis (cape ant-eater) male and female.
Secretarius reptilivorus.
Pterocles variegatus (male and female.)
Perdix saphæna.
Perdix lechoho (male and female.)
Colius striatus.
Francolinus nudicollis.
Francolinus clamosus.
Cratopus bicolor.
Cacatua funerea.
Cacatua chrysolophus.
Corythaix ———
Corythaix variegata.
Otis afra.
Struthio camelus (young.)
Rhinopomastus Smithii.
Hemipodius hottentotus (male and female.)
Macromyx capensis.
Upupa promerops.
Certhia famosa.
Coturnix Cambayensis.

Also, the following, in skin—

Colius leucomotus.
Colius indicus.
Microps minutus.
Corythaix ———.

Also presented by the same members, shells of the following species of Testudo and Emys.

Testudo radiata, (Shaw) 2 specimens.
Testudo pardalis, (Bell).
Emys ———.

Mr. J. W. Rulon presented specimens, in skin, of

Corvus albicollis,
Circætus ecaudatus,
Aquila rapax,
Ibis Hagedasch,
Gypaëtos barbatus,

Mr. Gliddon presented the collection of geological and other specimens from Egypt, referred to in his late letter, consisting of:

16 specimens of fossil wood, partly in the agatised state from the "Petrified Forest" in the Eastern Desert, near Cairo.
1 specimen calcareous incrustation, } 2nd Cataract.
1 do. ferruginous do. }
2 Jasper Boulders. Western Desert.
Sienite, being the fragment of a monument at Medinet Habou, Thebes.
Sandstone, fragment of a Monolith. 1st Cataract.
Desert Sand; Abu Simboul, Nubia.
27 Specimens of Fossil Shells and Bones, from Wady el Tigh, in the Eastern range, near Cairo.
20 Specimens of Minerals, including Jaspers, Agates, Selenite, Quartz Crystals, &c., &c.
White Limestone, being part of the lining of the shattered sanctuary of the Brick Pyramid, of Dashoor.

DONATIONS TO LIBRARY.

Proceedings of the American Philosophical Society. Vol. 2nd, No. 21, 1842. From the Society.

Transactions of the Linnean Society. Vol. 18, Part 4th, 1841; with portions of the Proceedings of the same; being the contents of the parcel referred to at last meeting.

WRITTEN COMMUNICATIONS.

A letter was read from Dr. Frederick Tamnau, dated Berlin, Prussia, Dec. 20th, 1841, proposing an exchange of mineral productions from Germany, Norway, Sweden, &c., for

those of this country; and also appending a catalogue of the minerals at present in his possession.

VERBAL COMMUNICATIONS.

Dr. Goddard stated, that he believed the genus of Infusoria, referred to by Dr. Chaloner at the last meeting, to be Closterium, and that it possessed much resemblance to vegetable matter; the most positive proof of which was, that upon the application of iodine to the interior of the supposed animals, a blue colour was produced.

The evolution of oxygen gas was an additional proof of their vegetable origin.

In reference to the donation of Fossil Woods made this evening, Dr. Goddard also adverted to the belief usually entertained of the Exogenous specimens being confined exclusively to the Coniferæ, and observed that most of those on the table evidently possessed this character; others however belonged to the Endogenæ.

Mr. Gliddon entered into some particulars respecting the localities from which a large portion of the donations made by him this evening, was derived.

Mr. Gliddon also, in reply to a request from Prof. Rogers for information respecting Boulder formations in Egypt, observed, that these Boulders were found about 200 miles above Cairo, scattered in great numbers over the Desert, lying upon limestone; and appeared to consist principally of sandstone, the surface being much darker than the interior of the stone. Mr. Gliddon having suggested to the Society, the advantages which it might derive for obtaining more definite information on this and other geological subjects, from communicating with the Egyptian Society at Cairo, it was, on motion,

Resolved,—That a Committee of three be appointed to

draft a series of queries to be addressed to the Egyptian Society at Cairo, with reference to the geology of Egypt.

The Committee consists of Prof. Rogers, Dr. Morton, and Mr. Taylor.

The Society also passed a vote of thanks to Mr. Gliddon for his donation, and the valuable and interesting information afforded by him this evening.

STATED MEETING, MAY 17, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Two specimens (mounted,) of Paradisea regia (King Paradise bird). Presented by Mrs. Wm. Furness, through Dr. Zantzinger.

A small Collection of Plants from New Holland. Presented by Capt. Perrit, through Dr. Carson.

An additional donation of Minerals from Egypt, by Mr. Gliddon: chiefly Jaspers, Alabaster fragments, Calcareous specimens, &c.

DONATIONS TO LIBRARY.

Annual Report of the State Geologist of Maryland, 1841. By J. C. Ducatel, M. D. From the Author.

WRITTEN COMMUNICATIONS.

A letter was read from Prof. Locke, of Cincinnati, dated

Philadelphia, May 12th, 1842, informing the Academy of a donation by him of Casts of American Fossils; and also requesting an exchange of either casts or specimens.

Also a letter from Dr. Geo. Engelman, dated St. Louis, Missouri, April 25, 1842, stating that he had transmitted a donation of rare German plants, with some species of Verbena and Cuscuta from his own vicinity, and likewise requesting an exchange.

STATED MEETING, MAY, 24, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

74 Casts of American Fossils, &c., from Dr. John Locke, being the Collection referred to in his letter read at the last meeting, and containing the following—

Isoteles ———.
Isoteles gigas (4 specimens).
Isoteles megistos, (9 specimens).
Mouth piece of do. (2 specimens).
Calymene Blumenbachii.
Calymene senaria (4 specimens).
Calymene Downingiæ.
Triarthrus Beckii (2 specimens).
Cryptolithus tesselatus.
Dipleura Dekayi.
Paradoxides ———.
Apocrinites reticulata (3 specimens.
Fucoides cauda galli (2 specimens.
Fucoides Harlani.
Asaphus ——— (4 specimens).
Asaphus caudatus.
Asaphus tuberculatus.
Strophomena alternata.
Pentamerus oblongus (3 specimens).
Lingula ———.

Atrypa,———
Atrypa testudinaria.
Shell resembling Gryphæa.
Pterinia carinata (2 specimens)
Cornularia quadrisulcata.
Strophomena ———.
Trilobites (not named, 6 specimens.)
Fucoides (5 specimens).
Diluvial grooves.
Star Coral.
Bilobite fucoid.
Coal impressions (9 specimens).

A white eyeless crayfish, (Astacus Bartoni?) and a small eyeless fish, (presumed to belong to a sub-genus of Silurus,) both from the Mammoth Cave, Kentucky, about 2½ miles from the entrance. Presented by W. T. Craige, M. D.

WRITTEN COMMUNICATIONS.

The Chairman read a letter from Dr. A. Clapp, dated New Albany, Ind., May 15, 1842, making inquiry respecting his communication read before the Academy in March last, and also requesting a printed copy of a late paper by Mr. Conrad on the Silurian and Devonian Systems, now in course of publication in the Journal of the Academy.

NEW BUSINESS.

Mr. Vaux presented a report of the returns of a subscription by the following named members, for the purpose of erecting, painting and glazing book cases in the Hall, viz.— R. M. Patterson, M. D., Thos. Nuttall, Samuel Ashmead, Geo. W. Carpenter, S. G. Morton, M. D., Wm. S. Vaux, E. Draper, William Hembel, C. W. Pennock, M. D., A. L. Elwyn, R. Pearsall, S. S. Haldeman, Richard Wistar, and J. Price Wetherill. The subscription amounted to $325, of which a small balance remained unexpended, which it was proposed to appropriate towards the erection of cases for containing Birds.

In accordance with a suggestion from the Chairman, it was then on motion,

Resolved,—That Prof. Locke have permission to take casts of the Fossils now in the Collection of the Academy.

MEETING FOR BUSINESS, MAY 31, 1842.

VICE PRESIDENT MORTON in the Chair.

The Report of the Corresponding Secretary for the last month was read and adopted.

The Committee to whom was referred the following communication from Mr. S. S. Haldeman, read Feb. 1, 1842, reported in favour of publication in the Proceedings of the Academy.

A spirit of selfishness has crept into Zoology, which looks rather to the advantage of the individual, than to the advancement of the science; and authors, with the former point in view, have invented various methods to carry out the principle; and, what is worse, *authority* brings those to practice them, who would have been shocked at the idea of using them in the first instance. Among these, I count the practice of citing one's own name for a genus or species founded by another, on the strength of varying a single letter, or even the gender. Examples of this occur in the writings of Rafinesque. If this is proper, a printer may assume the authorship of a book in which he finds and corrects grammatical errors. Admit the principal that Unio metanevra, Raf. shall be called U. metannever, Lea: and the French will have our own authority to assume almost every species of American Unio, because they consider them as of the feminine gender, whilst they have been described here as masculine; and any one not a botanist, may place the species of Potamogeton (heretofore considered neuter) in the feminine gender to which it belongs, as has been ascertained from a passage in Pliny.

Having recently looked over the list of American Unionidæ, I wish to propose a few corrections in nomenclature, before they are made, and the species appropriated abroad, by some one who will not cite the original describer. A western conchologist gives all the species of Alasmodon to Mr. Lea, not because he was the first to name them, to create the genus, or to place them in it; but because he places them in the *same* genus with those who first described them, but under a differ-

ent name, which has neither priority nor sense to recommend it; and which, under other circumstances, this author would probably have rejected, if we may judge from the fact that he adopts the names Physa and Planorbis, rather than Bulinus and Coretus. The same principle would deprive Mr. Lea of all his species of Alasmodon; for assuredly authors will not adopt Shumacher's name for this genus, when so much a better one is in general use. Generic nomenclature is not, and never has been, subjected to the rigid rule of priority which species require; and a name founded upon the generic peculiarity will generally be adopted in preference to others. A fossil animal with a head unlike that of a bird, was named Ornithocephalus; it is now called Pterodactylus. A remarkable mammal with flat feet, and a bill like that of a bird, was first named Platypus, but is now known by the name Ornithorhynchus* alone.

To put these matters to the test, I propose that the letter *u* shall take the place of *w* in the specific name of Unio Cowperianus of Lea, this gentleman having committed an error in the orthography. To suit the views of those who do not like the appearance of a name with the termination anus following a genitive, I propose that *Couperii* be adopted instead of the above. There is an "Anodonta Cowperiana" which I do not correct, because I wish merely to discuss a principle. I propose that all the species of the genus Alasmodon† or Alasmodonta, be called by one of these names; and that the hybrid specific name of Unio Nashvillianus be changed into the more correct and classical one of Nashvicensis. Finally, I disclaim all citation for these propositions, as I think it would be the height of absurdity to cite any one for species he does not know.

In relation to the communication of Dr. A. Clapp, of New Albany, Indiana, read March 8th, 1842, the Committee consisting of Mr. Conrad, Prof. Rogers and Mr. Vanuxem, reported the following for publication in the Proceedings:—

A letter was read from Dr. A. Clapp of New Albany, Indiana, dated February 25th, in relation to the Geological equivalents of the rocks of the Falls of the Ohio, and other strata in the Western States.

The author states, that there appears to be little or no true carboniferous limestone east of the Falls of the Ohio. The stratum which he doubtfully referred to it, in a previous letter of December, 1840, viz the Oolitic and Pentremite limestone of Professor Troost and Dr. Owen, he is now convinced is the carboniferous limestone, commencing a short distance west of New Albany, and underlying the coal formation in the western part of Indiana, part of Kentucky and Illinois. It is entirely wanting in Ohio.

He refers to his previous communication of April last, as showing that the limestone of the Falls of the Ohio, the cliff limestone of Professor Locke, does not belong to the Carboniferous, but to the Upper Silurian System of Murchison. The limestone of the Falls immediately underlies the black bituminous slate, which appears to be the equivalent of the Marcellus shales of New York. The lower strata of the Falls have many fossils of the Wenlock limestone, but the

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* The middle *h* is sometimes omitted, as it was by Linneus in his genus Rynchops. Is the first author who made the omission, and he who first wrote *Rhynchops*, entitled to these genera, with their species? In a notice of Kiener's work, in the Revue Zoologique, this author is censured for writing "Pleurotonia mitræformis. Val," Wood having previously used the specific name "mitriformis."

† This is the more correct form, and corresponds with Monodon, Hyodon, Diodon, etc.

upper, particularly the water lime, has also many of the Ludlow. The lower and middle portions of the Cliff limestone, he conjectures to be equivalents of the Niagara limestone and Gypseous shales: the entire mass called the Cliff limestone, represents therefore the Niagara limestone, Gypseous shales, water-lime, Onondaga limestone, &c. to the Marcellus shales. Under the name Cliff limestone is here included all the group above the blue limestone and marls of Cincinnati, to the black slate. It is the western continuation of the middle Silurian series of Mr. Conrad.

The water-lime of the Falls of the Ohio, is a drab-coloured rock, from ten to fourteen feet thick, covered by a subcrystalline fœtid limestone eight feet thick, containing *Encrini*, a *Conularia*, *Delthyris* and *Favosites*, and a few other corals, and immediately underlies the black slate. In most places the water-lime is entirely destitute of organic remains; the few which occur belong to the lower Ludlow and Amestry of Murchison, as *Orthis lunata vel reticularis, leptæna lata? Turbo carinatus, Terebra sinuosa, Tentaculites*, perhaps a new species, *Avicula reticulata, Calymene bufo, Asaphus Micrurus;* several undetermined species of Delthyris, an Eschara, &c.

In the strata below the water-lime were found many fossils of the Wenlock limestone, *Strophomena euglypha, Atrypa prisca*, the latter also occurring in the water-lime and upper limestone; *Pleurorynchus curreus?* of Conrad, and an immense profusion of Polyparia, characteristic of the Wenlock limestone.

The Catenepora occurs below the main mass of the corals, and thirty or forty feet below the water-lime. It would therefore appear, that the water-lime belongs to the middle or upper part of the Hederburg group, and cannot represent the Onondaga salt group of Mr. Hall.

The author expresses a doubt of the identity of the black bituminous slate of Ohio, with the Ludlowville group of Mr. Hall, as supposed by that gentleman. Though the shales and sandstone in the vicinity of New Albany, for more than four hundred feet above the black slate, are destitute of fossils, except a few indistinct *Fucoides*, yet sixteen miles south, in Kentucky, great quantities of Crinoidæa occur, fifty or one hundred feet above the slate; and an Orthis which Mr. Hall considers identical with a species of the Ludlowville shale of New York.

ELECTION.

M. Léon Dufour, of Paris, was duly elected a correspondent of the Academy.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. I. JUNE and JULY, 1842. Nos. 15, 16.

STATED MEETING, JUNE 7, 1842.

DR. BRIDGES in the Chair.

DONATIONS TO MUSEUM.

Several fine specimens of fibrous Sulphate of Lime, from the Mammoth Cave, Kentucky. Presented by William T. Craige, M. D.

Bucco margaritatus, and Cuculus cupreus, from Africa. From Mr. George W. Carpenter.

Pterocles tachypetes (male and female.) } Mounted speci-
Pterocles ——— (male and female.) } mens.
Pachyptila Smithii (female.)
Two specimens of Buteo Jackal, South Africa. } In skin.
One do. Buceros cassidix.

Presented by Messrs. Wetherill, Vaux, Hembel, and others.

DONATIONS TO LIBRARY.

Twelfth Report of the Chester County Cabinet of Natural Science. West Chester, Pa. April, 1842. From the Society.

WRITTEN COMMUNICATIONS.

A letter was read from Professor Lindley, dated London, April 30, 1842, acknowledging the receipt of his notice of election as a Correspondent of the Academy.

STATED MEETING, JUNE 14th, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Seventy-six specimens, in skin, of Birds, principally from Egypt and Nubia, being part of the collection of the late M. Rüppell, with the original labels still attached. Presented by Professor Holbrook, of Charleston, S. C.

This collection embraces the following:

Cathartes percnopterus.
Falco Buteo, L. (1 male and 2 female.)
—— palumbarius, L. (male.)
—— apivorus, L. (female.)
—— rufus.
Lanius collurio, Briss. (female.)
——— collaris.
Colius indicus.
Musicapa grisola, L. (female.)
Turdus musicus.
——— torquatus, (male.)
——— iliacus, (female.)
Oriolus galbula, (male.)
——— condougnan.
——— Ceylanicus.
Silvia phœniceus, (3 males.)
—— trochilus, (male.)
—— hortensis, (male.)
—— sibillatrix, (female.)
—— atricapilla, (male.)
Regulus flavicapillus.
Motacilla alba, (female.)
Anthus arboreus, (male and fem.)
Cypsilus apus.
Alauda arvensis, (male.)
Parus ater, (male and female.)
—— major, (male.)
—— caudatus, (female.)
Emberiza schoeniclus, (male and female.)
Emberiza hortulana.
——— citrinella, (male.)
Fringilla carduelis, (female.)
——— montana, (male & fem.)
——— paridisea.
Loxia pyliopsillacus, (male.)
Sturnus varians, (male, female, and young.)
Corvus pica, (2 males.)
——— glandarius, (2 males.)
Lamprotornis morio.
Nectarinia promerops.
Upupa epops, (male.)
Alcedo ispida, (female.)
Picus viridis, (male.)
—— major, (male.)
Cuculus canorus, (young male.)
——— prionanis.
Columba oenas, (male.)
——— Abyssinica.
——— porphyrea.
——— Capensis.
——— palumbus.
Ardea major.
—— garetta.
Ardea ———
Glareola torquata
Ciconia nigra.
Diomedea melanphrys.
Tantalus Ibis.

Porphyris smaregdinus.	Anas Egyptiacus.
Recurvirostra ———.	Fulica cristata.
Tringa pugnans.	Gallinula chlorops.

A Collection of Insects, from Mr. Charles W. Twigg, of New Harmony, Indiana.

Mass of Sandstone, from the neighbourhood of Plymouth, Pennsylvania, containing nodules of the same substance, in cavities. From Dr. Hiram Corson, of Plymouth.

DONATIONS TO LIBRARY.

Second Bulletin of the National Institution for the promotion of Science. March 1841, to February, 1842. Washington, 1842. From the Society.

WRITTEN COMMUNICATIONS.

The Chairman read a letter from Mr. S. S. Haldeman, dated Marietta, Pennsylvania, May 17, 1842, enclosing communications intended for publication in the Proceedings of the Academy, viz: Descriptions of a new species of Cypris, of two species of Hydrachnæ, and of two Entomostraca.

In this letter Mr. Haldeman stated the singular fact of his having observed, "in a small pond two feet in diameter and two inches deep, no less than thirty species of animal form; including two Crustacea, four Entomostraca, nine Mollusca, one Annelid, two Hydrachnæ, and about a dozen aquatic larvæ."

The communications were referred to a committee, consisting of Mr. Phillips, Dr. Goddard and Dr. Morton.

A letter was also read from Dr. Corson, dated Conshohocken, June 10, 1842, accompanying his donation.

VERBAL COMMUNICATIONS.

Professor Rogers called the attention of the members to the recent earthquake in St. Domingo, remarkable for its severity and the great destruction of life and property. He alluded to

the evidence which the recent accounts from the West Indies furnish, of the general correctness of the hypothesis, originally advanced by Michell, in the Philosophical Transactions for 1760, that the movement of the earth in earthquakes is undulatory. That such is the nature of the motion may be considered indeed as established, both from observation in many regions of the globe, and from instrumental investigations now in progress in Scotland. Professor Rogers proposes to explain the billowy oscillation of the ground, by *actual waves* engendered on the surface of the great fluid lava-mass, supposed to occupy the whole interior of the globe; and he accounts for the waves, by the sudden or explosive escape of highly compressed vapours, by the rending of the crust, or through other outlets.

He suggested to the Society the importance of procuring, through correspondence on the part of members, some more detailed and accurate statements than have yet appeared in the public prints, in relation to the phenomena of the late shocks in the West Indies; as regards,

First. The extent of the earthquake; whether it reached the mainland of South America, and to what distance northward from Porto Rico and St. Domingo it was felt at sea.

Secondly. The direction of the undulations and accompanying concussions.

Thirdly. The precise time at each locality of the occurrence of the first shock, and of each principal succeeding one.

Fourthly. Whether the cloud of vapour reported to have been seen at Port Plate, on the north-east coast of St. Domingo, was actually such, or merely dust, caused by disturbance of the soil or the crushing of falling buildings.

STATED MEETING, JUNE 21st, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

A specimen, in skin, of Felis Canadensis, (Northern Lynx,) from Fox river, Illinois; of Felis ———, from South Carolina, and one of Tetrao urogallus, (Wood Grouse,) from the Alps, also in skin. From Dr. William Blanding.

Dr. Blanding also presented a skeleton of Rana pipiens, and one of Rana fontinalis, both of which had been prepared by the large red ant of this country. Also, a skin of Vespertilio Pennsylvanica, and a dried inflated lung of Emys rubriventris.

DONATIONS TO LIBRARY.

Onziéme Rapport Annuel sur les Travaux de la Societé d'Histoire Naturelle de l'Isle Maurice; par M. Louis Bouton. Maurice, 1841. From Mr. Wm. Hembel.

VERBAL COMMUNICATIONS.

Dr. Goddard remarked, in reference to the inflated lung presented this evening, that it offered a very good type of the lobule of the human lung; and that although each lobule of the latter was isolated and distinct from all the rest, its air cells communicated freely with each other; a fact, the discovery of which was due to Professor Horner.

MEETING FOR BUSINESS, JUNE 28th, 1842.

VICE PRESIDENT MORTON in the Chair.

The committee, consisting of Mr. Phillips, Dr. Goddard, and Dr. Morton, to whom were referred the following communications of Mr. Haldeman, reported in favour of publication in the Proceedings.

Description of two species of Entomostraca and two Hydrachnæ, by S. S. Haldeman.

DAPHNIA *abrupta*. Body short, irregular in outline, back but slightly convex, meeting the head at a slight depression, and the posterior extremity with a curve of a quarter of a circle; posterior margin running downwards and forwards, with a rounded projection opposite the head; ventral margin very convex. Colour, brown; length, 2 millim.

Hab. Ditches along the Susquehanna.

LIMNADIA *coriacea*. Body lengthened; swimming branchiæ extending along three-fourths of the inferior surface, from the neck to the extremity of the tail; tail crested above with a row of large conical obtuse tubercles; apex of the shell elevated, and about one-fourth of the length from the anterior extremity; colour, light brown; length 5 millim., height 3, diam. 1½.

Hab. Ditches along the Susquehanna, in quiet water.

Obs.—The shell is coriaceous and translucent, and bears a slight resemblance to *Mesodesma Jauresii*. It is not a little singular that the same generic and specific name, *Limnadia gigas*, should have been applied both to a crustacean and a mollusc, each of which has a bivalve shell, and inhabits fresh water.

HYDRACHNA *scabra*. Subglobose, dull vermillion red, displaying a rough papillated surface under the microscope; legs ciliated, some of the bristles extremely long; claws simple, retractile: length 1½ millim.

Hab. Quiet waters along the Susquehanna. Swims well, and occasionally leaves the water for the damp earth.

HYDRACHNA *5 undata*. Subglobular, light ochraceous, clouded with light yellowish brown; there are five blood-red spots, placed respectively between the eyes, at the posterior extremity, upon the margin of each side, and in the middle of the body; legs long, slender, and ciliated. Length 1 millim. Extremely active, swimming through the water with great rapidity.

Occurs with the preceding species.

Description of a new species of Cypris. By S. S Haldeman.

Cypris scabra. Shell modioliform rough, inflated, thickly covered with bristles; colour, (of the dead shell,) pale livid, or corneus. Length 1½, height 1 millimeter.

Hab. A small pond near Cambridge, Mass. It resembles Modiola nexa somewhat, in outline.

The committee on Dr. Zantzinger's paper, containing a Tabular Statement of Meteorological observations for the year

1841, reported in favour of publication in the Journal of the Academy.

The Corresponding Secretary read his Report for the last month.

NEW BUSINESS.

Mr. Phillips, from the Committee on Proceedings, reported the following Resolution, which, on motion, was adopted:

Resolved,—That when the Committee on the Proceedings consider it unadvisable to publish a communication in the form in which it has been received, they may decline it, unless it can be modified to their satisfaction, with the consent of the author; but in case of his absence, they shall refer the proposed alterations to the Academy.

ELECTION.

M. Edm. de Selys Longchamps, of Liege, was elected a Correspondent of the Academy.

STATED MEETING, JULY 5th, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Four Crania of Hindoos. Presented by Dr. James Mease.

Unio Hopetonensis.
——— spinosus.
——— obesus.
——— Sheppardianus.
——— splendidus.
——— lugubris.
——— dolabræformis.
Achatina striata.
Helix septemvolva.
Anadonta gibbosa.
Anadonta Couperiana.
Anadonta incerta.
Ampullaria Hopetonensis.
Cyclas similis?
Physa gyrina.
Physa heterostropha.
Paludina Georgina.

Presented by Mr. J. H. Couper, of Darien, Georgia, through Mr. Phillips.

A specimen of Lymnadia coriacea. From Mr. Haldeman.

DONATIONS TO LIBRARY.

Franklin Journal, Vols. 4, 5 and 6; and Journal of the Franklin Institute, Vols. 5, 6, 7, 8 and 12, completing the Academy's copy to Vol. 18. From Mr. Frederick Graff, Jr., through W. S. Vaux.

Journal of the Academy of Natural Sciences. Vol. 8. Part 2d. 1842. From the Committee of Publication.

Histoire des Vegetaux Fossiles, ou Recherches Botaniques et Geologiques sur les Vegetaux renfermes dans les diverses couches du Globe. Par M. Adolphe Brongniart. From Peter A. Browne, Esq.

Description des Coquilles Fossiles des Environs de Paris. Par G. P. Deshayes, Vol. I. complete, and Nos. 1 to 6 inclusive of Vol. II. From the same.

Address delivered by B. Aldon Bidlack, on 22d Feb. 1839, at Wilkesbarre, Pa. From the Author.

WRITTEN COMMUNICATIONS.

The Corresponding Secretary read a note from Dr. Richard Harlan, in relation to a donation of Fossils intended for the Academy, now in his possession, from Mr. Couper, of Georgia.

The Chairman read a letter from Professor Locke, dated Medical College, Ohio, June 18, 1842, stating that specimens of the fossil Cryptolithus tesselatus had been discovered in his neighbourhood, in marl, which display the abdominal portion, not hitherto detected in this species. A description and drawing of the same accompanying the letter, were referred to a committee composed of Mr. Haldeman, Mr. Phillips, and Dr. Morton.

Professor Johnson read a communication from Peter A.

Browne, Esq., containing a description of a monstrosity occurring in a species of Rose, in which a portion of the inflorescence had been superseded by a growth resembling a branch with its leaves; with some explanations as to the mode in which this anomalous condition was produced.

The communication was referred to Drs. Pickering, Bridges and Zantzinger.

Dr. Chaloner read a translation from the French of M. Linant's account of the discovery of the Petrified Forest near Cairo, Egypt, with a description of the same.

Specimens from this forest were presented by George R. Gliddon, Esq., at a former meeting of the Academy.

On motion, Resolved, that a copy of this translation be placed in the Library of the Academy.

Mr. Haldeman read a paper, entitled, "A Description of two new species of Hydrachnæ; viz. H. nebulosa, and H. coccinea; and of one Daphnia, D. reticulata," which was referred to a committee, consisting of Drs. Goddard, McMurtrie and Pickering.

VERBAL COMMUNICATIONS.

Professor Johnson made some remarks on the determination of copper in analysis. He stated that the usual mode was to precipitate the protoxide from solution; that in this case, it is necessary that an excess of alkali should be added, and the precipitate well washed. It is also attended by a loss in filtering, &c. By using dry sulphate of copper these objections are obviated. This salt is readily dried without decomposition; and Professor Johnson stated that with the same portion of copper he repeated an experiment several times, and had found this mode of determination more satisfactory than that by the oxide, and with less variation in result.

Mr. Haldeman then made the following remarks:

From the great number of generic names required in Zoolo-

gy and Botany, it frequently happens that the same name will occur, not only in both these sciences, but will be occasionally used for different genera in one or the other kingdom. No principle is perhaps better established than that which denies the same name to different genera; and it is necessary therefore, that those concerned in the construction of generic nomenclature, should look over the names already instituted, as a safeguard against a *double emploi*. Thus *Cenchrus* and *Apogon* are genera in both kingdoms.

I wish, therefore, to propose a few changes in the names of several genera, viz:

Anopaia, instead of *Harpyia*, *Cuv.*, for a genus of birds, the latter name being preoccupied, both in Mammalogy and Entomology.

Oplacerus instead of *Mazama*, Smith; this name having been pre-applied to Ovis or Capra montana, Ord, by Rafinesque.

Sargus was long since applied to a genus of dipterous insects by Illiger: Cuvier more recently, upon dismembering the genus Sparus of Artedi and Linnæus, improperly adopted it for the typical section, to which, therefore, the original name *Sparus* must be applied.

Lynx, (a subgenus of Felis,) was published by Rafinesque in 1817, and I believe has the priority of *Lynchus*, which is also the name of a genus of Crustacea.

STATED MEETING, JULY 12, 1842.

MR. PHILLIPS in the Chair.

DONATIONS TO MUSEUM.

A specimen of Canis latrans, (prairie wolf,) from Illinois; of Alligator Mississippiensis, from South Carolina, (adult size;) and of Talpa Europæa, from the Alps. Presented by Dr. William Blanding.

A donation of finely prepared plants of Kentucky, &c., consisting of 77 species; some of which are rare and one entirely new. From Prof. C. W. Short, of Louisville, Kentucky.

Specimens of Diallogite, from Transylvania; Kerolite, from Gumberg, Silesia; Picrosmine, from Pusterthal, Tyrol; Picrolite and Metaxite, from Reichenstein, Silesia. Presented by J. Randolph Clay, Esq.

A specimen of Dysluite, from New Jersey. From Mr. Joseph A. Clay.

Fossil Ferns, from the vicinity of Hamilton, Lanarkshire, Scotland. From Dr. Watson.

The following large and valuable collection of Fossil bones and shells from the Brunswick canal, Georgia, was presented by J. Hamilton Couper, Esq., of Darien, Ga., through Dr. Harlan.

Fragments of the superior maxillary bones of the Megatherium, showing the sockets of the teeth.

One side of the lower maxillary of the Megatherium, with the four teeth in place.

Head of the femur, and fragments of the same bone of do.

Vertebræ of do. and fragments of the ilium, showing the glenoid cavity.

A lower incisor tooth of the Hippopotamus.

The same, with the points broken off.

A fragment supposed to belong to the same animal.

Tooth of a Horse, broken.

Teeth of the Mastodon giganteum.

Pieces of the ribs, vertebræ, &c., of the Mammoth and Mastodon.

Two rotulæ of the Mammoth, and a fragment of a tusk.

Teeth of the Elephas primogenius.

*One side of the lower maxillary of an animal unknown to the donor; with teeth.

*A Humerus, supposed to be of the Bos family.

A Tibia, do. do.

A rib and vertebræ of a Whale.

Fossil Shells.

Pyrula carica; Venus mercenaria; Cytherea concentrica; Cardium ventricosum; Arca pexata; Mactra lateralis? Tellina alternata; Ostrea edulis; Oliva literata; Pectunculus; Lutraria and Solen.

Corresponding recent shells taken from the sea-beach within ten miles of the canal.

Also, a portion of petrified wood, found abundantly in small fragments.

Samples of marl, green sand, and proto-sulphate of iron, from the canal where the rib and vertebræ of the whale were found.

DONATIONS TO LIBRARY.

Syllabus of a course of popular lectures on Physiology. By Reynell Coates, M. D. From Mr. Haldeman.

American Journal of Science and Arts. Vol 43, No. 1. For April, May and June, 1842. From the Editors.

WRITTEN COMMUNICATIONS.

Mr. Haldeman read some additional "Remarks on Changes of Nomenclature in Natural History," which were referred to Dr. Morton, Dr. Bridges, and Mr. Phillips, as a committee.

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*Since described by Dr Harlan, at pp. 143, 144, of Silliman's Journal for July 1842, the former as the left ramus of the lower jaw of *Sus Americana*, and the latter as the right os femoris of *Chelonia Couperi*.

In continuation of my observations on the use of the same name for different genera, I would remark that it is possible, in many instances, to vary the later one so slightly, that it would be essentially the same: and, to prevent confusion, the name of the author who instituted the genus, might be cited for it.* These variations might take place either in the orthography, in the gender, or by a diminitive. Linnæus himself has set us an example, in applying such names as Picus and Pica to distinct genera of birds.

But in making changes of this kind, it is very necessary to be careful that great confusion be not the result. Thus, Bonaparte has proposed "Pogonathus, Bon." in place of "Pogonias, Cuv." because the latter is applied to a genus of birds. Yet if we turn to the Règne Animal, we will find "Pogonias, Lacép" We do not, however, find Pogonias in Lacépède, the name being Pogonathus.

I propose Ancyllus and Teronyx, instead of Ancylus and Trionyx, for genera of Hymenoptera.

Conoura, Eucryptus and Auchenella, instead of Conurus, Cryptus, (Hal.) and Auchenia, for genera of insects.

Clypastræa and Strongulus, instead of Clypeaster and Strongylus, for coleopterous genera.

Cymindus, instead of Cymindis, for a genus of birds; and Labeola instead of Labeo, for a genus of insects. There are many other names employed for distinct genera: thus Chione, Venilia, Cleodora, Pandora, Hyria, and Lucina, are common to Conchology and Entomology; Sylvia and Tanagra to the latter and Ornithology; and Labeo and Zyæna to Entomology and Ichthyology.

Dr. B. H. Coates read a "Note on the Natural Alliances of the genus Cecidomyia, intended to facilitate identification;" which was referred to a committee, viz.: Dr. McMurtrie, Dr. Pickering, and Mr. Haldeman.

Nothing new is professed to be furnished by the present paragraphs. They are compiled from sources not difficult of access among the liberal collections of this city; but it has been hoped that some utility could be derived from preserving and more widely diffusing a memorandum of the alliances of this destructive family of insects, so as to increase the number and practicability of observations on the part of those favourably situated for that purpose.

The old Linnean genus, Tipula, is, I believe, a natural one. It is, at all events, one of a striking appearance. A delicate, lightly framed, two winged fly, of a form much resembling the moschito, frequently capable of resting and dancing on running streams of water, so as to attract popular attention by the circumstance, and at the same time unable to inflict severe and penetrating wounds on the bodies of warm-blooded animals, from the feebleness of its proboscis. This organ would seem, in general, only fitted for sucking up uncovered or but slightly covered fluids; and contains, to use the language of one of the best authorities, only a pair of lancets; being, in this respect, very deficient when compared with the allied family, Culicida. The antennæ, with the exception of a single sub-family, are thread-shaped. The perfect insect shows but little avidity for food.

Five natural groups seem to arise; in each of which the appearance of the

*Cuvier writes "Machœra, Lacép." But this genus stands *Makaira*, in Lacépède's work, and it is more necessary to retain the original orthography, as Machœra has been recently applied to a genus of Molluscs.

perfect insect visibly differs, and the habits of the larva vary materially in respect to food and habitation. We copy some of the characters.

1. *Chirnonides.* Aquatic Tipulides. Male antennæ plumose; larvæ aquatic.

2. *Tipulides proper.* Terrestrial Tipulides. Head elongated into a muzzle; no ocelli; larvæ inhabit the earth.

3. *Mycetophilides.* Tipulides of fungi. Two or three ocelli; trochanters elongated; tibiæ strongly spurred; larvæ feed on fungi.

4. *Cecidomyides.* Tipulides of gall-nuts. Head not prolonged into a muzzle; no ocelli; trochanters of ordinary length; antennæ moniliform; larvæ feed on galls formed on vegetable substances.

5. *Bibionides.* Tipulides of flowers. Antennæ short, perfoliated, generally fewer than 12 joints; legs of ordinary length; larvæ often resident in rotten dung and vegetable debris. [To me this seems contradictory.]

The above classification is quoted from M. Latreille; and is preferred by the author whom I have already cited, and whom I believe to be Mr. Westwood. The less extensive knowledge of the species possessed in the years when Messrs. Meigen and Lamarck wrote, prevented their distribution of the family from being, at that time, so perfect. They are compelled, in this place, to follow a more artificial method; and have thus brought in close approximation some whose mode of life has subsequently been thought to differ. It has since been thought to be rendered evident, that the larvæ of the proper tipulidæ, at least as a general rule, live on the roots of plants. Among the authorities cited for this are Kirby and Spence.

It is evident that the natural affinities of Cecidomyia, are with the sub-family to which it has given its name. It has been approximated to Lasioptera. The latter is a genus with terrestrial larvæ, living on roots; and the parent, according to professor Meigen, not furnished with an ovipositor. The figures, too, given by the latter writer as specimens of the genera, differ in their habits. In the earlier state of knowledge in relation to the tipulide tribe, and particularly while the larvæ were less known, the collocation of several species was doubtful. Mr. Meigen is said to place the Tipula juniperina, L., which inhabits the tops of the juniper, "doubtfully in Lasioptera." I understand the words "unbekannte horde," under which he introduces this species, to mean "unknown, or ill-understood hordes," or "unknown, ill-defined group."

It is observed that every larva of the family, thus far, appears to consume solid substances by chewing, and, as a necessary inference, to possess real jaws; instead of sucking by a trunk, as has been, in this country, universally affirmed of the species so frequently the subject of popular discussion. The consideration goes to strengthen, if possible, the inference that the quiescent substance generally supposed, in imitation of Mr. Say, to be the larva of the Hessian fly, and which, by the avowal of that distinguished writer, so closely resembles the pupa, is really the pupa in an early stage, and that the larva is to be looked for in the maxillated and gnawing worm.

It appears to be every where observed, that as soon as these animals increase to a certain extent, their further diffusion is immediately limited by the ravages of the different parasites of the families Chalcidida and Proctotrupidæ. The coincidence of these diminutions, from a cause not generally understood, with various other circumstances affecting the wheat crops, probably gives reputation to many other supposed means, natural and artificial, of destroying the injurious fly.

The Corresponding Secretary read several letters from Mr. Couper, of Georgia, addressed to Dr. Harlan of this city, in

reference to the donation of fossil bones and shells announced this evening; and also containing a list of the specimens.

VERBAL COMMUNICATIONS.

Dr. Chaloner exhibited a specimen of a small Trilobite, said to have been taken from a coal excavation at the Bear Gap, about 14 miles from Pottsville, Pa., along with the fern impressions so numerous in such excavations. Some doubts were expressed by Dr. Chaloner as to the correctness of his informant. He was desirous, however, of calling the attention of the members to the subject.

In relation to the donation of Minerals this evening, Mr. J. A. Clay remarked, that they exhibited in a striking manner, the identity of certain Magnesian minerals of the U. States, and especially those of Chester county, Pennsylvania, with the Picrosmine, Metaxite, &c. of Europe.

BUSINESS BY SPECIAL RESOLUTION.

On motion of Professor Johnson, Resolved, That the 2d Part of the 7th Vol. of the Journal of the Academy, be presented to M. de Longchamps, of Leige.

STATED MEETING, JULY 19, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

A specimen of Infusorial Earth, from a stratum varying from 12 to 15 feet in thickness, found in the hills near Richmond, Virginia. This material lies between the Eocene and Miocene Tertiary strata, and spreads over an area of several miles. Presented by Professor Wm. B. Rogers, of Virginia.

DONATIONS TO LIBRARY.

Continuation of the Copper plates of Haldeman's Limniades; Lymnæa plates, Nos. 12 to 15. Presented by the Author.

Histoire Naturelle de l'Ile de Cuba. Par M. Ramond de la Sagra. Liv. 30th and 31st. Presented by J. Price Wetherill, J S. Phillips, S. G. Morton, M.D., A. L. Elwyn, M.D., W. S. Vaux, J. A. Clay, and Geo. C. Leib, M. D.

WRITTEN COMMUNICATIONS.

The Chairman read two letters from M. Henry Galiotti, dated Brussels, Dec. 27, 1840, and Feb. 24, 1842, tendering his services in adding to the collections of the Society in the different branches of Natural History; and soliciting exchanges from the Academy, and from the members individually; and also announcing that he had forwarded for the Society several of his works.

By permission of the Academy, Professor H. D. Rogers, from the committee appointed in May last to draft a series of

queries to be addressed to the Egyptian Society at Cairo, in reference to the geology of Egypt, and especially Boulder formations, made a report on the subject, containing said queries.

The report, on motion, was adopted.

A communication from Peter A. Browne, Esq., was read, presenting to the Academy a valuable collection of West Indian Plants, Fruits and Seeds.

On motion of Mr. Phillips, it was Resolved; That the thanks of the Society be tendered to Mr. Browne, for the very valuable and finely preserved collection of plants, fruits, &c., obtained by him during his recent visit to the West Indies, and presented to the Academy this evening.

MEETING FOR BUSINESS, JULY 26, 1842.

VICE PRESIDENT MORTON in the Chair.

After the reading of the Monthly Report of the Corresponding Secretary, the following reports of committees were presented and adopted.

The Committee on the following paper by Mr. Haldeman, read July 5th, 1842, in favour of publication in the Proceedings.

Description of two new species of Hydrachna and one of Daphnia. By S. S. Haldeman.

HYDR. *nebulosa*. Globular, mottled with brown; a large central sub-rectangular spot back of the eyes, which are apparently double upon each side, red and black; an orange spot in the centre of the back; legs very slender, first and second pair thinner than the third and fourth; palpi long, basal half cylindrical, extremity tapering. More globular than my Unionicola oviformis, with a nearly similar light Y shaped mark upon the back, and equalling this species in size.

Hab. A little pond on the Susquehanna, above Columbia.

HYDR. *coccinea*. Subglobose, uniform bright scarlet, legs slender, covered with short bristles; palpi bristled, ante-penultimate articulation thickened. Length 4 millim.

Hab. with the preceding. Differs from H. scabra, in being larger, and in wanting the long bristles to the legs. The posterior legs are not "destitute of cilia," wherein it differs from Limnochares extendens, Say.

DAPHNIA *reticulata*. Ovate, margins imbricated, surface divided by fine lines into minute rectangles; posterior half of the body with the dorsal and ventral portion approaching each other by similar curves, which meet in a long, slender, tapering caudal appendage. Closely resembles "Monocculus pulex." Jurine's Hist. des Monocles, Pl. 8. fig. 1. Length 1½ millim.

Hab. with the preceding.

The Committee on Professor Locke's communication, read July 5th, 1842, on the Fossil Cryptolithus tesselatus, reported also in favour of publication in the Proceedings; viz:

So rarely do we meet with Fossils in such a state that we can unravel in any degree the structure beyond the mere external form, that I sit down while the subject is still new and exciting, to communicate to you what seems to me to be a discovery in relation to the Cryptolithus tessellatus. This fossil is so seldom found with anything more than the scuta and its ornamented margin, that some naturalists have doubted the existence of an "abdomen" and "tail," similar to the corresponding parts of other trilobites. In examining a stratum of clay-marl, which

constitutes, perhaps, a hundred feet in thickness of our horizontal strata, the fossils were found to be merely imbedded, without petrefaction, and easily separable from the fine, soft, earthy matter In this condition, they exhibit a freshness and sharpness highly interesting to the student. Within the last week. Mr. James Foster, an amateur collector of our city, discovered in this marl several specimens of the above fossil, *with the body entire.* Soon after Mr. Anthony and myself found other specimens of the same. The new facts disclosed by these specimens and by others found in this vicinity, are 1st. That the animal was furnished when entire. with very long spines or processes from the posterior angles of the shield. 2d. The abdomen is partly concealed, about five articulations, under the posterior half of the shield. 3d. The middle *lobe* of the shield is posteriorly mucronate. The first fact is fully exhibited in a specimen in Mr. Foster's cabinet; the second fact in a specimen of my own, in which the shield has separated from the body, disclosing the articulations beneath; the third fact in two specimens belonging to Mr. Foster. The middle lobe of the abdomen is about half the width of the lateral lobes, and shows only five or six articulations uncovered by the shield The tail is very distinct from the abdomen, with about five obscure articulations. Mr. Anthony has a specimen, which, by a fracture of the shield, discloses seven abdominal articulations, and the whole number is probably ten. It is evident, from this structure, that when the animal rolled itself in the manner of the trilobite family, the whole body would be concealed under the shield. The posterior part of the body is circumscribed by a well defined raised margin.

The associated fossils are Strophomena alternata, Atrypa testudinaria, Lingula ——, Orbicula, Isotelus megistos, Calymene senaria, Orthoceræ, Enchrinites and Corallines. Formation, "Blue limestone," Trenton Limestone of the N. Y. Geologists, or a formation above it.

The Committee to whom was referred a communication by Peter A. Browne, Esq., describing a "monstrous Rose," presented a report, stating that as the paper differed in character so materially from those usually inserted in the Journal and Proceedings, and in addition required a plate for its complete elucidation, its publication, in its entire form, was rendered impracticable.

The following portion contains some strictures on terms used in Vegetable Physiology.

It remains only to note, that when botanists inculcate the doctrine to which allusion has been made above,* they make use of *terms* that are illy adapted to convey their meaning. "A flower," they say, "is a *transformed* branch: all its organs being leaves, which have undergone a peculiar *metamorphosis*,"† by which we would understand that nature first formed a branch, and afterwards converted

*The present theory, of the flower being the product of successive whorls of leaves.

†Gray's Botany, p. 158.

it progressively into a calyx, a corolla, stamens and pistils; whereas they do not intend to be understood that these parts ever existed as branches or leaves, but that their nature and origin are the same. And this being the case, why are the words "transformed," and "metamorphosed" used at all? Terms should never be used in science with different meanings from that in which they are generally understood, if it can possibly be avoided.

It is the opinion of some eminent botanists, that the same vegetable matter which, called into action on the earth, with sufficient light, air, &c., produces a Lichen, will, in moisture or decaying organized substances become a Fungus; or if developed under water, exhibit the form of an Alga. But this has not been considered a sufficient warrant for the assertion, that one of these is transformed or is metamorphosed into the other.

This erroneous mode of expression is peculiarly conspicuous in regard to the present specimen, since it conveys the idea that the leaves were first transformed into calyx, corolla, stamens and pistils, and were afterwards by a retrograde movement metamorphosed back again into leaves; when in truth all we mean to assert is, that owing to the peculiar circumstances attending the developement of the flower, the vegetable matter which was called into action, never arrived at the stage of perfection required for these more perfect organs, and that therefore they *remained* leaves.

The Society then proceeded to an election for Correspondents of the Academy, with the following result.

CORRESPONDENTS.

Professor John A. Warder, of Cincinnati, Ohio.
John C. Warren, M. D., of Boston.
J. N. Nicollet, Esq., of Washington City.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. I. AUG. SEPT. & OCT., 1842. NOS. 17, 18, 19.

STATED MEETING, AUGUST 2, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Two Scorpions from the Isthmus of Darien. Presented by Mr. Wm. L. Hobson through Mr. J. B. Quinby.

A Collection of Plants (seventy-two species) from Germany, France, Switzerland, Bohemia, and this country. Presented by Geo. Engelmann, M. D., of St. Louis, Missouri.

Specimens of Physa aurea, Lea, and Paludina Nickliniana, Lea. Presented by Mr. Philip H. Nicklin, through Mr. Phillips.

Mr. Phillips also presented from Mr. Haldeman the following Shells:

Helix annulata, Sow.	Nucula tenuisulcata.
Helix monticula, Sow.	Nucula tenuis.
Terebratula Septentrionalis.	Neritina ———.

A specimen of Trichurus lepturus. From Dr. Morris Beasley, of New Jersey, through Mr. Ashmead.

A ream of Chinese paper for the use of the Botanical Committee. Presented by Dr. Pickering.

DONATIONS TO LIBRARY.

Beitrag zur Kenntniss der Naturlichen familie der Amarantaceen. Von Dr. Von Martius, M.D., A.D.N. From the Author.

Uber die Entwickelung der Botanick seit dem Bestehen der k. b. botanischen Gesellschaft zu Regensburg ein Vortrag, gehalten in der Sitzung der Gesellschaft, am. 15. April, 1840. Von Dr. Von Martius. From the same.

Herbarium Floræ Brasiliensis, &c. Botanophilis offert Dr. Von Martius. Monachii, 1837. From the same.

Molluscorum Species, quas in Itinere per Orientem facto comites clariss. Schuberti doctores M. Erdl, et J. R. Roth, collegerunt. Recensuit Dr. J. R. Roth. Dissertatio Inauguralis. Monachii, 1837. From the same.

Uber die Theorie der Parallelen. Inaugural Dissertation von Dr. Anton Bischof. Munchen, 1840. From the same.

Astronomische Beobachtungen, angestellt auf der k. Sternwarte zu Bogenhausen von dem ordentlichen Mitgliede der Akademie der Wissenschaften. From the same.

Bericht uber die ausserordentliche Sitzung der k. b. Botanischen Gesellschaft, am. 28. Nov., 1841. From the same.

Denkschriften der Königlich, Bayerischen, Botanischen Gesellschaft zu Regensburg. Vol. III. Regensburg, 1841. From the same.

Coup d'oeil sur la laguna de Chapala au Mexique, avec notes géognostiques. Par M. Henry Galiotti. From the Author.

Description de quelques Fossiles du Calcaire Jurassique de Tehuacan, au Mexique. Par H. Galiotti. From the same.

Notice Géologique sur les Environs de San José del Oro, au Mexique. Par M. Galiotti. From the same.

Notice sur les Tremblements de Terre, et les Etoiles filantes. Par H. Galiotti. From the same.

Recherches Statistiques sur la Population du Mexique en 1840. Par H. Galiotti. From the same.

Aperçu Géognostique sur les Environs de la Havana. Par H. Galiotti. From the same.

Addresses delivered at the Anniversary Meeting of the Geological Society of London, on the 21st of February, 1840, and 19th of February, 1841; and the Announcement of the award of the Wollaston Medal, and Donation Fund for the same years. By the Rev. Prof. Buckland, D. D., F. R. S. London, 1840 and 1841. From the Author.

WRITTEN COMMUNICATIONS.

A letter was read from J. H. Balfour, M. D., dated Glasgow, June 21, 1842, acknowledging the reception of his notice of election as Correspondent of the Academy.

Also a letter from Dr. Charles Von Martius, dated March 2d, 1842, noticing the donation of books made this evening, and soliciting correspondence and exchanges between the Academy and the Royal Academy of Sciences at Munich, and the Royal Botanical Society of Ratisbon.

BUSINESS BY SPECIAL RESOLUTION.

On motion of Mr. Phillips,

Resolved, That two as full series of the Publications of the Academy as are on hand, be forwarded by the Publication Committee to Dr. Von Martius, on behalf of the Academy.

STATED MEETING, AUGUST 9, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Sixty-four Species of Plants from the Andes, collected and presented by J. Frampton Watson, Esq.

Portions of a Human Skeleton, discovered and brought from the Ruins of San Francisco, near Ticol, nineteen leagues from Mérida, Yucatan, by Mr. J. L. Stephens, and deposited in the Academy by Dr. Morton.

Bones of the Raccoon, Deer, Bat, and a single vertebra of a minute Fish, from a Cave on the Condogwinit, near Carlisle, Pennsylvania. From Dr. Wm. T. Craige.

A Specimen, in spirits, of Uranoscopus ———, from the mouth of Great Egg Harbor River. From Mr. Ashmead.

The Botanical Committee announced the reception of Mr. Browne's collection of West Indian Plants, Fruits, &c., accompanied by a Catalogue, in which the name of each species is given under the head of the natural family to which it belongs, with short statements of its localities, peculiarities and uses.

The whole collection contains of dried plants 300 species; of fruits, seed vessels, and seeds, about 55 varieties; and of woods, 73 varieties; some of which latter are polished.

DONATIONS TO LIBRARY.

Saggio Storico dei Rizopodi Caratteristici dei Terreni Sopracretacei. Par Giovanni Michelotti. Modena, 1841. From the Author.

Monografia del genere Murex, ossia enumerazione delle

principali specie dei Sopracretacei dell' Italia. Par Giovanni Michelotti. Vicenza, 1841. 4to. From the Author.

Description des Cancellaires Fossiles des Terraines Tertiaires du Piémont. Par Louis Bellardi. Turin, 1841. From the Author.

Annales des Mines. Tome XX. 5me. liv. de 1841. From the Society.

Histoire Naturelle, &c. de l'Ile de Cuba. Par M. Ramond de la Sagra. Liv. 32, 33, 34, 35, 36 and 37. Presented by J. Price Wetherill, J. S. Phillips, S. G. Morton, A. L. Elwyn, W. S. Vaux, Jos. A. Clay, and Geo. C. Leib.

WRITTEN COMMUNICATIONS.

The Chairman read a letter from M. Jean Michelotti, dated Turin, March 24, 1842, accompanying the donation of his works.

Also a letter from M. Louis Bellardi, dated March 25, 1842, in reference to the presentation of his work.

And a note from Peter A. Browne, Esq., introductory to his Catalogue of West Indian Plants, &c.

VERBAL COMMUNICATIONS.

Dr. Morton laid on the table the remains of a human skeleton found by Mr. J. L. Stephens in a vault or tomb at the ruins near Ticul, nineteen leagues from Merida, in Yucatan. Dr. M. remarked that these bones have pertained to a female, whose stature has not exceeded five feet three inches, at the same time that the absence of *epiphyses* and consequent consolidation of the bones are proofs of adult age. From the appearance of the teeth, however, which are fresh, and not sensibly worn, and a line or furrow marking off the crista of the ilium, it is presumed that this individual had not passed her twentieth year. The bones of the head, which are still partially separable at the sutures, are admirably characteristic of the *American Race*, as seen in the vertical occiput and the great inter-parietal diameter, which measures five inches and eight-tenths. The head is of full size, in proportion to the rest of the skeleton, of which the bones are of very delicate proportions, especially those of the feet and hands. An interesting feature of this skeleton is, the occurrence of a large spongy *node* on the upper and inner surface of the left tibia, on which it extends about two inches in length, one inch in breadth, and half an inch in thickness. Dr. Bridges having subjected some fragments of these bones

to the usual chemical tests, found them in a very great degree deprived of animal matter—an additional evidence of their antiquity.

Dr. Morton also exhibited parts of four other skeletons, obtained also in Yucatan, by Mr. Benjamin A. Norman, during a recent sojourn in that country. They were found in mounds near the sea-coast; but on a closer examination, it was ascertained by that gentleman that these mounds had been pyramids of mason work, which, by gradual disintegration, and subsequent deposits of vegetable matter, had been reduced to the low, conical, or mound-like form. One of these skeletons is that of a man of perhaps five and twenty years of age; the bones, which are chiefly those of the extremities, are large, and indicate a person of full stature. The few remaining cranial bones are large and massive, which remark also applies to both maxillæ, in which the teeth are remarkably perfect. The os calcis and other bones of the foot are of delicate proportions. Parts of a second skeleton from the same mound are smaller, but so few, and so much broken, as to prevent any certain indications of age or sex.

Of the two remaining skeletons, only a few fragments of long bones and others of the hands and feet remain. These are much larger than those already described, and have probably pertained to men of large stature. No remains of cranial bones were found among them. These fragments were not tested for the animal matter they may contain; but, judging from their extreme disintegration, it must have almost wholly disappeared.

Mr. Gliddon remarked, on the authority of Mr. Stephens, that an examination of the sepulchre, and of the mode in which these remains had been interred, totally disproved any idea of their being of Egyptian origin or character.

BUSINESS BY SPECIAL RESOLUTION.

On motion of Dr. Morton, Resolved, That the Catalogue accompanying Mr. P. A. Browne's donation of West Indian plants, &c., be bound, and deposited in the Library of the Academy.

STATED MEETING, August 16, 1842.

Mr. Phillips in the Chair.

DONATIONS TO LIBRARY.

An account of Indian Serpents collected on the Coast of Coromandel, containing descriptions and drawings of each species, together with remarks on their several poisons. By Patrick Russell, M. D., F. R. S. London, 1776. From Mr. William Hembel.

Appendix to the American in Egypt. By Geo. R. Gliddon. Philadelphia, 1842. From the Author.

STATED MEETING, August 28, 1842.

Dr. Bridges in the Chair.

DONATIONS TO MUSEUM.

A specimen of Arctomys monax, from Pennsylvania. Presented by Mr. S. W. Woodhouse.

DONATIONS TO LIBRARY.

Proceedings of the American Philosophical Society, No. 22, for May, June, and July, 1842. From the Society.

Report of the Secretary of the Navy, in relation to the invention of Thomas S. Easton, for preventing explosions of steam boilers. June, 1842. From Prof. Walter R. Johnson.

WRITTEN COMMUNICATIONS.

A letter was read from Mr. J. N. Nicollet, dated Baltimore, August 16, 1842, in acknowledgement of the receipt of his notice of election as Correspondent of the Academy.

MEETING FOR BUSINESS, AUGUST 30, 1842.

VICE PRESIDENT MORTON in the Chair.

The Monthly Report of the Corresponding Secretary was read and adopted.

The Botanical Committee reported that Vol. 12, of Compositæ, which had been in the hands of Dr. Gray for arrangement, by permission of the Society, had been returned by him much improved and amended, by Notes and Additions.

A resolution was adopted, authorising the Curators to have the Collection of Insects removed from the Hall, under their superintendence, for the purpose of being disinfected.

After the disposal of some general business, the Academy proceeded to an election for Correspondents, when the following gentlemen were announced duly elected as such.

CORRESPONDENTS.

Spencer F. Baird, Esq., of Carlisle, Pennsylvania.
M. Henry Galiotti, of Brussels.
J. Hamilton Couper, Esq., of Georgia.
Hon. Benjamin Tappan, of Ohio.

STATED MEETING, SEPTEMBER 6, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Coluber eximius, in spirits. From Dr. Hallowell.

DONATIONS TO LIBRARY.

An Inquiry into the distinctive characteristics of the Aboriginal Race of America. Read at the Annual Meeting of the Boston Society of Natural History, April 27, 1842. By Samuel George Morton, M. D. From the Author.

Monograph of the Limniades, or fresh water univalve Shells of N. America. Nos. 4 and 5. By S. S. Haldeman. From the Author.

Note on the Fossil Jaw sent from Jubbulpore by Dr. Spilsburg. By Henry Piddington. From the Author.

Fourth Memoir with reference to the Law of Storms in India. By Henry Piddington. Calcutta, 1841. From the same.

Notes on the Law of Storms, as applying to the tempests of the Indian and Chinese Seas; drawn up for the use of the Expedition to China. By Henry Piddington. 2d Edition. Calcutta, 1842. From the same.

WRITTEN COMMUNICATIONS.

A letter was read from Henry Piddington, Esq., dated Calcutta, February 21, 1842, accompanying the above donation of works.

Also a letter from Dr. Geo. Engelmann, dated St. Louis, Missouri, Aug. 15, 1842, which was referred to the Botanical Committee.

STATED MEETING, SEPTEMBER 13, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

A specimen of the root and fruit of Zamia integrifolia, from Florida;

Skull of Manatus Americanus, Buf.; (latirostris, Harlan,) with a rib of the same animal, from Florida;

And a specimen of Asterias reticulata, Linn. All presented by Dr. Victor Godon, U. S. N.

A specimen of Thracia Conradi, Gould. From Mr. Conrad.

DONATIONS TO LIBRARY.

Monographia Pselaphidarum et Scydmænidarum Britanniæ, or an Essay on the British Species of the genera Pselaphus of Herbst, and Scydmænus of Latreille. By Henry Denny. Norwich, 1825. From the Author.

Monographia Anopleurorum Britanniæ; or an Essay on the British Species of Parasitic Insects belonging to the order Anoplura of Leach. By Henry Denny. London, 1841. From the Author.

WRITTEN COMMUNICATIONS.

The Chairman read a letter from Mr. Henry Denny, dated Leeds, June 5, 1842, in reference to the above donation.

STATED MEETING, SEPTEMBER 20, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Dried Specimens of Hydrodyctum pentagonum. From Dr. Goddard.

Two Specimens of Arseniuret of Antimony and Iron from Leominster, Worcester Co., Mass. Presented by Mr. W. R. Kendall, through Prof. Johnson.

A Specimen, in spirits, of Plestiodon erythrocephalus, from Virginia. Presented by Mr. Josiah Curtis, through Dr. Morton.

DONATIONS TO LIBRARY.

Transactions of the Linnean Society, Vol. XIX, Part 1, with a list of the members of the Society for 1842. From the Society.

Constitution and First Annual Report of the Northern Academy of Arts and Sciences. Hanover, New Hampshire, 1842. From the Academy.

WRITTEN COMMUNICATIONS.

The Corresponding Secretary read letters

From Mr. William Vaughan, dated London, August 5, 1842, accompanying the presentation of the Transactions of the Linnean Society:

From the same gentleman, dated London, August 8, 1842, acknowledging the receipt of the letter of the Corresponding Secretary, enclosing the Resolutions adopted by the Academy, having reference to the decease of his relative, the late John Vaughan, Esq., of Philadelphia.

From the Secretary of the Linnean Society, dated London, June 25, 1842, acknowledging the receipt of Nos. 4 to 8 of the Proceedings of the Academy.

From Dr. William Johnson, dated Factory Island, Liberia, June 11, 1842, and from Mr. Spencer F. Baird, dated Carlisle, Pennsylvania, September 15, 1842, severally acknowledging the receipt of their notices of election as Correspondents of the Academy.

The Chairman read a note from Dr. Edmund Ravenel, dated Charleston, S. C., August 24, 1842, alluding to a fossil Scutella, regarded by him as probably new; accompanied by sketches and a partial description of the same.

VERBAL COMMUNICATIONS.

Prof. Johnson exhibited and explained a method of applying the galvanometer to the purpose of testing the relative destructibility of different samples of sheathing copper when exposed to the action of salt water. He referred to the fact that, in early periods of the use of copper for sheathing the bottoms of vessels, while iron bolts were still used for fastenings, the copper lasted much longer than at present, while the iron itself was rapidly corroded; that copper bolts having been substituted for iron ones, the sheathing exhibited a much more rapid decay than before. He likewise alluded to the fact that the practice of fastening on sheathing copper with composition nails, offers an antagonist electric force to that of the copper, rendering the latter more highly electro-positive, and thus facilitating its union with the electro-negative elements of sea water. It was also mentioned, that in removing the copper from ships, some sheets are often found much more corroded than the rest, and that this takes place among sheets manufactured at the same works, and apparently with equal care in freeing the metal from impurities.

It was further mentioned that long experience had evinced the uncertainty of obtaining *durable* copper by efforts to approximate chemical purity in the manufacture, and that in copper free from other metals the oxide of copper is sometimes detected both in the interior and on the exterior of the mass, rendering it earthy in appearance, and liable to be disintegrated as well as corroded. In proof of this latter effect he exhibited a quantity of copper particles brushed from a sheet of that metal which had been worn several years between the keel and the false keel of an English sloop of war, where, though the salt water could penetrate and corrode it, the disintegrated particles could not be reached by the waves to be washed away.

As the comparative electric energy of two sheets of copper is proportionate to the amount of corrosion going on, and as the quantity of electricity set in motion also determines the influence of its current on a magnetic needle, the deflection of that of a common galvanometer may be made to determine the relation of two sheets to each other, and thus to ascertain whether they are suitable to be associated together on the bottom of the same vessel.

Two methods were described and illustrated by which this may be accomplished. The first is to oppose in succession the several sheets of copper to a sheet of platina constituting the negative element of the pair, and observing

the deflections which the several copper sheets produce in the needle of the galvanometer. The other is to oppose all the sheets of sheathing copper to one of chemically pure copper deposited by the galvanotype process.

Both these methods were exhibited in connexion with several specimens of sheathing copper, the specimens which had, by analysis, been shown to be the purest copper, exhibiting the highest electro-positive energy when compared with platina, and the lowest electro-negative power when opposed to the galvanotype plate. Composition nails were found near platina in the scale, and galvanotype copper not so widely removed from iron as are some varieties of brass.

The arrangement of apparatus supposed to be best adapted for use in practice, is a triple astatic needle, having its middle needle within, its lower one below, and its upper one above a spiral of copper ribbon, formed in such a manner as to present the edges of the ribbon to the upper and under surfaces of the needles. The suspension may be either that of a pivot, or that of a single or double support of unspun silk. The liquid preferred for use, in this species of test, is common sea water; being the same to which practice subjects the sheathing copper, and having the advantage of being easily procured, costing nothing, and capable, therefore, of being renewed as often as the operator may think fit.

MEETING FOR BUSINESS, SEPTEMBER 27, 1842.

VICE PRESIDENT MORTON in the Chair.

The Monthly Report of the Corresponding Secretary was read and adopted.

ELECTIONS.

Jacob P. Giraud, Jr., Esq., of New York, was elected a Correspondent:

And John Cassin, Esq., of Philadelphia, a member of the Academy.

STATED MEETING, OCTOBER 4, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

The following Collection of Shells from St. Louis, Missouri, was presented by Dr. Benjamin B. Brown, of that place, through Dr. Morton:

Unio rectus, Lam.
—— reflexus, Raf.
—— plicatus, Say.
—— æsopus, Green.
—— alatus, Say.
—— crassus, "
—— verrucosus, Raf.
Alasmodonta complanata, Barnes.
Melania elevata? Say.
Unio metanever, Raf.
—— lineolatus, "
—— luteola, "
—— torsus, "
—— fragosus, Conrad.
—— ovatus, Say.
—— fragilis, Raf.
—— undatus, Barnes.

Mr. R. C. Taylor presented between 80 and 90 Species of West Indian and American Plants, chiefly Ferns, collected by himself, and finely preserved.

A number of living young Snakes, (Coluber eximius,) constituting a whole family, with the remains of the eggs from which they had been hatched, were presented by Mr. Jacob Peirce. They were discovered by him on the 10th of September last in the act of hatching, about a foot beneath the surface, at the base of a rock having a southern exposure.

DONATIONS TO LIBRARY.

Transactions of the Zoological Society of London, Vol. III, Part 1st. London, 1842.

Proceedings of the same, Part 9th, 1842; and the Annual Reports of the Council and Auditors of the same, for 1842. From the Society.

Manuscript Catalogue of the West Indian Plants, Fruits, seeds, &c., presented by P. A. Browne, Esq. Bound by order of the Society.

WRITTEN COMMUNICATIONS.

A communication was read from P. A. Browne, Esq., on the subject of the human foot prints found in the Limestone Rock at St. Louis, Missouri, in which he gave his views respecting the origin of the same.

The communication was referred to a Committee, composed of Dr. Goddard, Mr. Taylor, and Professor Rogers.

STATED MEETING, October 11, 1842.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

A living Specimen of Kinixis denticulata, from Africa. Presented by Mr. Cassin.

WRITTEN COMMUNICATIONS.

The Corresponding Secretary read letters from Dr. E. S. Dixwell, Corresponding Secretary of the Boston Society of Natural History; and from the Secretary of the American Philosophical Society, severally acknowledging the receipt of copies of the Proceedings of the Academy.

STATED MEETING, OCTOBER 18, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Voluta proboscidalis, V. Neptuni, (very large, and finely preserved specimens;) and Murex saxatilis, from Liberia, Africa. Presented by Mr. John Cassin.

Two Specimens of Ampullaria depressa, from the Everglades of Florida. Presented by Dr. Godon.

DONATIONS TO LIBRARY.

The American Journal of Science and Arts. Vol. 43, No. 2, for July, August and September, 1842. From the Editors.

The Principles of Chemistry, printed for the use of Schools, Academies, and Colleges. By Daniel B. Smith. 2d Edition. Philadelphia, 1842. From the Author.

Catalogus Coleopterorum in Siberia Orientali a cel. Gregorio Silide Karelin collectorum. Auctore G. Fischer de Waldheim. From the Imperial Society of Naturalists of Moscow.

Index Plantarum anno 1840 a cell. Karelin et Kirilow in Regionibus Altaicis et confinibus collectarum, quas Societas Imperialis Naturæ curiosorum Mosquensis pro mutua commutatione offert. From the same.

Bulletin de la Societé Impériale des Naturalistes de Moscou. Année, 1842. No. 2. Moscow, 1842. from the same.

WRITTEN COMMUNICATIONS.

The Chairman read a letter, dated Moscow, July 13th, 1842, from Dr. Renard, 2d Secretary of the Imperial Society of Naturalists of Moscow, accompanying the above donation of works.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. I. NOV. AND DEC. 1842. Nos. 20, 21.

STATED MEETING, NOVEMBER 1, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

Report of the Secretary of the Navy in relation to the second invention of Thomas S. Easton for preventing explosions of steam-boilers. From Professor Johnson.

Histoire Naturelle de l' Ile de Cuba. Par M. Ramond de la Sagra. Livs. 38 et 39. From a club of Members.

WRITTEN COMMUNICATIONS.

A communication was read by the Recording Secretary from Mr. Isaac Lea, dated October 31, 1842, correcting an error committed by Mr. Haldeman in a communication made by the latter to the Academy in May last, and published in its Proceedings, in which he proposed that "the letter *u* should take the place of *w* in the Unio Cowperiana of Lea," on the ground of an error in the orthography. Mr. Lea stated that

the Unio in question was not named after Mr. J. Hamilton Couper of Georgia, as was probably supposed by Mr. Haldeman, but after Mr. Wm. Cooper of New York. Mr. Lea also objected to any change in the specific name, and also to Mr. Haldeman's proposed alteration of Unio Nashvillianus to U. Nashvicencis, the latter, in his opinion, not being "more classical and correct."

The Corresponding Secretary read a letter from J. Hamilton Couper, Esq. of Darien, Georgia, dated Oct. 6, 1842, acknowledging the receipt of his notice of election as Correspondent of the Academy; and also transmitting a communication giving a detailed description of the strata, in which the fossil bones and shells from the Brunswick Canal, lately presented by him to the Academy, were found; preceded by a sketch of the geological features of the surrounding country.

The communication was referred to the Committee on Proceedings.

[The length of this interesting paper will preclude its insertion entire in this publibation. It will be reserved for the first part of the next volume of the Journal of the Academy. For the present, therefore, the Committee are only enabled to give the following, being the concluding portion of the paper.]

The fossil bones of the terrestrial mammalia* were found in the bed of the canal, at the southern end of this swamp, at six different points extending up from its junction with the salt marsh to a distance of three miles. In every instance they were found at the bottom of the alluvial deposit, imbedded in it, and lying on the stratum of sand. The first two feet of the alluvial formation is a sandy loam, gradually passing into a compact clay of a ferruginous character, which extends three or four feet deeper. In this stratum of clay thin veins of marl and fragments of petrified wood were found at different depths: but no fossil shells, either of marine or fresh water origin. The stratum of sand on which the bones were found lying is on an average nearly five feet above spring tides. About the line of

* The most interesting of these bones belong to the Megatherium, the Mastodon giganteum, Elephas primogenius, Hippopotamus, Horse, Bos, and to a nondescript animal, which Dr. Harlan has described as the Sus Americana, in Silliman's Journal, for July, 1842.

high water the sand changes its color from yellow to white, and assumes a quicksand character, which it retains for one or two feet, when it is succeeded by a coarser and sharper sand, with the occasional occurrence of thin strata of fœtid black mud or clay. Small masses of marine fossil shells,* lying horizontally, or nearly so, are found scattered at intervals throughout this sandy formation, at almost every point of the canal. The depth varies from five feet above to five feet below the line of high tides, —which is the greatest depth to which the excavation has extended.

The rib and vertebræ of the whale were discovered near the northern extremity of the swamp, in the yellow sand, and about a foot below its surface. They were much worn, and one of the vertebræ was much incrusted with barnacles. At this point bog iron ore and protophosphate of iron were found above the sand containing the marine shells.

The precise spot where the extinct Chelonia (C. Couperi of Harlan) occurred was not ascertained; but there is every probability that it was taken from the same formation.

The bones of the mammalia occurred generally in groups; and in some cases a large number of those of the same skeleton were found together. From this circumstance and the unworn and perfect state of many of the bones, it is highly probable that the carcasses of the animals were floated, or fell into the then lake or stream, and that, sinking to the sandy bottom, they were gradually covered to their present depth by the deposits of the sediments of the water. Of the species discovered, the remains of the Megatherium and the Mammoth were the most abundant; and of the former six heads of femurs were found in the bed of the canal within the distance of a mile. All the bones were at the same depth, and imbedded in the same stratum; thus leaving no doubt of their co-existence at a period succeeding the elevation from the ocean of the newer pliocene, but antecedent to the formation of the older recent alluvium of this coast.

The co-existence of the Megatherium with the Mastodon, Mammoth, Hippopotamus, Horse, Ox and Hog, has here, it is believed, been for the first time established; and forms, with the discovery on this continent, of a well defined fossil species of Sus, two interesting facts in Geology.

The identity of most of the fossil shells which were found below the bones of the mammalia, with the existing species on this coast, proves, that the temperature of the ocean, long prior to the existence of the Megatherium, Mammoth, and Hippopotamus, was such as is congenial to the present mollusca. Another inference which may be drawn is, that the surface of the country has undergone no sudden or violent change since these gigantic animals occupied its forests and morasses; but that such as have occurred have been slow and gradual.

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* The following species occur most abundantly:

Venus mercenaria, Pyrula caurica, Cardium ventricosum, Artemis concentrica, Area pexata, Area penderosa, Lucina divaricata, Modiola lateralis, Tellina alternata, Mactra lateralis? Oliva literata, Natica duplicata, Crepidula convexa.

STATED MEETING, NOVEMBER 8, 1842.

MR. PHILLIPS in the Chair.

DONATIONS TO MUSEUM.

Impressions of Fossil Fish, brought by Mr. Catherwood from Mount Lebanon, Syria, and presented by Mr. T. L. Littlefield through Edward Needles of Philadelphia.

Three fine mounted specimens of Otis tarda, one male and two females. Presented by Mr. Wm. Hembel.

DONATIONS TO LIBRARY.

Traité Elementaire de Botanique appliqueé, &c. Par F. A. Pouchet, Docteur en medicine, Prof. d'Histoire Naturelle au Jardin Botanique de Rouen. 2 vols. 8vo. Paris, 1835. From the Author, through Mr. Wm. Wagner.

Chromatics, or an Essay on the Analogy or Harmony of Colours. 4to. London, 1817. By George Field of Ileworth, England. From the Author, through C. N. Bancker, Esq.

Chromatography, or a Treatise on Colours and Pigments, and of their powers in Painting. By Geo. Field. 8vo. 2d ed. London, 1841. From the same.

Outlines of Analogical Philosophy, being a primary view of the principles, relations and purposes of Nature, Science and Arts. By Geo. Field. 2vols. 8vo. London, 1839. From the same.

Monograph of the North American Cuscutineæ. By George Engelmann, M.D., St. Louis, Missouri. From the Author.

Reply to Dr. Hare's further objections relating to whirlwind storms. By Wm. C. Redfield. From the Author.

VERBAL COMMUNICATIONS.

Mr. Wagner exhibited specimens of several species of Ammonites having a perfect mouth, from the Lias of Normandy, France; and stated that the fact had attracted much attention among scientific men abroad.

STATED MEETING, NOVEMBER 15, 1842.

MR. PHILLIPS in the Chair.

DONATIONS TO MUSEUM.

Two hundred Alpine Plants from the Valley of Chamouni and Mount St. Bernard; collected and prepared by M. Fege, Botanist and Mineralogist of Chamouni, and presented by the Rev. J. P. Durbin, through Mr. Ashmead.

WRITTEN COMMUNICATIONS.

The Corresponding Secretary read a letter from J. H. Redfield, Corresponding Secretary of the Lyceum of Natural History, dated New York, November 12, 1842, acknowledging the receipt of Part II., Vol. 8, of the Journal of the Academy.

Also a letter from Prof. J. A. Warder, dated Cincinnati, October 7, 1842, in acknowledgment of the receipt of his notice of election as a Correspondent of the Academy.

VERBAL COMMUNICATIONS.

Professor Johnson exhibited a specimen of the so-called Natural Coke from Creek Co., Virginia, an article which is now used to some extent as a fuel in that region. He stated that it was his intention to make an analysis of this coal, the result of which he would communicate to the Academy.

Professor Johnson also exhibited a specimen of Sydney Coal, one of those Bituminous coals represented to be very liable to spontaneous combustion. The specimen had been in his cabinet for more than a twelvemonth, and was now in a state of decomposition and covered with efflorescence.

STATED MEETING, NOVEMBER 22, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

The following specimens of Minerals from Nova Scotia were presented by Mr. Wm. S. Vaux.

Red Heulandite with Stilbite, Stilbite, } King's Co., Nova Scotia.

Chabasie with Heulandite, Nacreous Heulandite, } Two Islands, do.

Analcime, from Blomidon, Nova Scotia.

Also a specimen of Sulphate of Barytes from Cheshire, Connecticut. From the same.

A specimen of Galena from the vicinity of Paradise, Lancaster county, Pennsylvania, and several specimens of a mineral substance supposed to be Tierra di Sienna, also from Lancaster county, Pennsylvania. From Mr. P. A. Browne.

DONATIONS TO LIBRARY.

Lumley's Bibliographical Register. No. 12. New Series. From the Editors.

WRITTEN COMMUNICATIONS.

A communication was read from the American Philosophical Society, dated November 14, 1842, acknowledging the receipt of Nos. 17, 18, and 19, of the Proceedings of the Academy.

A communication was also read from Peter A. Browne, Esq., in reference to the specimens of Tierra di Sienna presented by him this evening, and enclosing a letter from Hugh Maxwell, Esq., of Lancaster city, which contained some information respecting the locality, and the quality of the different specimens, and stated that it was considered by artists, and other competent judges who had examined it, as equal to the article imported under that name.

The whole subject was referred to the following Committee, viz.: Prof. Johnson, Mr. Haldeman, and Mr. Peale.

The Chairman read a letter from Dr. Edmund Ravenel, dated Charleston, S. C., October 25, 1842, accompanying specimens of the fossil Scutella Lyellii sent by him.

STATED MEETING, DECEMBER 6, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Two living specimens of Crotalus durissus from Pennsylvania. From Dr. John K. Mitchell.

Mr. Peter A. Browne presented the following collection of Mineralogical specimens from Nova Scotia.

Iron Ore containing Fossil Shells.
Coarse Jasper enclosing crystals of Siliceous Sinter and calcareous Spar.
Jasper, from Two Islands, Bay of Fundy.
Jasper, striped, from Blomidon.
Fortification Agate, do.
Moss Agate, Two Islands, Bay of Fundy.
Siliceous Sinter and Cacholong, do.
Cacholong enclosing Quartz.
Siliceous Sinter, Two Islands, 2 specimens.
Mezotype, do.
Chabaisie, do. 2 specimens.
Heulandite, do.
Do. Black Rock, Bay of Fundy.
Do. Blomidon.
Mesolite or Needlestone, Blomidon.
Apophyllite, Blomidon.
Chalcedony enclosing Amethyst, do.
Chalcedony.
Analcime, from Two Islands.
Do. with Stilbite, Blomidon.
Do. with Siliceous Sinter, Blomidon.
Stilbite, from Black Rock, Bay of Fundy.
Fibrous Gypsum, white, Blomidon.
Do. variegated, Two Islands.

Calcareous Spar, Two Islands, 3 specimens.
Do. double refractive, Starr's Point, Cornwallis.
Selenite, fibrous and lamellar, Blomidon.
Pebbles, from Bay Chaleur.

DONATIONS TO LIBRARY.

Voyages en Scandinavie, en Laponie, &c. &c Par M. Elie de Beaumont. From the Author.

VERBAL COMMUNICATIONS.

Prof. Johnson mentioned that he had made trials to determine the volatile and earthy ingredients of the so-called natural coke from Virginia, of which samples were exhibited at a preceding meeting of the Academy. This substance presents in its exterior appearance a strong contrast with all known varieties of either anthracite or bituminous coal. It is wholly wanting in lustre. It has lost, if it ever possessed, all continuous slines or cleats, and even the surfaces of deposition appear to be in a great degree obliterated. Its texture is porous. It is in very many, if not in all specimens, strongly charged with iron pyrites, which, by exposure to the air, effloresing into sulphate of iron, gives the appearance of friability to the material, and by this means distinguishing it clearly from anthracite.

Two samples of this combustible were tried for the purpose of ascertaining the amount of earthy matter, volatile matter, and fixed carbon. The first gave of

	per cent.
Volatile matter,	11.16
Carbon,	77.86
Earthy matter,	10.98
	100.

The second, which appeared to be rather more highly charged with pyrites than the other, gave, by the mean of four separate incinerations, of

	per cent.
Earthy matter, only	2.43
Fixed Carbon,	82.75
Volatile matter,	14.82
	100.

The distillation of this fuel by the immediate application of a red heat, produces a gas which burns with a steady clear flame, of a yellowish white color, accompanied by a little smoke, which, however, nearly or quite disappears when the access of air is free and abundant.

The distillation produces no enlargement of volume or adhesiveness of the particles of carbonaceous matter, as in certain semi-bituminous or "transition" coals, such as that found on Stony Creek, in Dauphin county, Pennsylvania.

In regard to the applicability of the term "natural coke" to this substance, Prof. J. remarked, that understanding this term as indicating a change of texture from that of the bituminous coal of the same district, a partial discharge of the volatile ingredients of the same coal, and as a

necessary consequence, a relative augmentation of the earthy material as well as of the fixed carbon, he saw no impropriety in its use, but, on the contrary, a peculiar propriety, inasmuch as neither of the other terms in general use to designate mineral fuel is applicable to this variety. He referred to the geological report of the State of Virginia, in which an analysis of this substance is given, exhibiting its composition as follows, viz:

Carbon,	80.30
Volatile matter,	9.98
Ash,	9.72

BUSINESS BY SPECIAL RESOLUTION.

Mr. Phillips offered the following Resolution, which was adopted:

Resolved, That a Committee be appointed to determine the nomenclature of the N. American Naiades, preparatory to their being arranged in the collection of the Academy.

The Committee consists of Messrs. Phillips, Haldeman and McFarland.

STATED MEETING, DECEMBER 13, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

A Monograph of the Rhamphastidæ. By John Gould. Folio. London, 1842. From Mr. Haldeman, in exchange for other works.

WRITTEN COMMUNICATIONS.

A letter was read from M. Arago, Secretary of the Royal Academy of Sciences, of France, dated Paris, September 26, 1842, acknowledging the receipt of the Proceedings of the Academy, &c.

BUSINESS BY SPECIAL RESOLUTION.

By special permission, the Committee, consisting of Dr. Goddard, Mr. Taylor and Prof. Rogers, to whom was referred a paper by Peter A. Browne, Esq., on the subject of the supposed human foot prints found near St. Louis, in the Carboniferous Limestone, made a Report as follows :

That they do not consider that the ingenious arguments of the author can tend in the least to invalidate the reasonings of Dr. Owen in favor of the artificial nature of the foot marks. The evidence furnished by the paper and accompanying drawing of Dr. Owen, of which the communication before the Committee is a criticism, appears sufficient to place this question at rest for ever.

That these impressions are not genuine imprints of the human feet, but rude imitations, is obvious upon a slight anatomical consideration of them. Both the form and attitudes of the toes are entirely at variance with nature, and are such as to suggest that the sculptor exercised but a slight familiarity with the structure and capacities of motion of the parts. A mere inspection will satisfy all anatomists upon this point.

The geological proofs against their having been formed whilst the limestone was yet in a plastic state are no less decisive, since the facts stated by Dr. Owen go distinctly to show that the slab containing these foot prints is a portion of the carboniferous limestone formation of the Mississippi Valley, the Oceanic origin of each layer of which every geologist is prepared to demonstrate. Formed in the bed of an extended sea, and buried previous to its upheaval under an enormous accumulation of other deposits, it is impossible to conceive how human foot steps could gain access to the unconsolidated rock, even if the human race had existence at the time. That the race of man is of incalculably later origin than the rock containing these representations of feet, is, however, a fact thoroughly established in geology.

Setting aside, then, the possibility of referring the origin of these foot prints to the period of the formation of the rock, there is quite as little warrant for assigning it to any later period posterior to the upheaval and denudation of the stratum, for there are no facts connected with this, or any other of our ancient secondary rocks, which indicate that they retained their plastic condition after they were drained, to so late a date as the human epoch.

Guided by these and other considerations of similar purport, your Committee express their conviction, that the arguments detailed in the paper submitted to them do not at all weaken the published proofs of the artificial nature of the supposed foot prints.

On motion of Dr. Goddard, the communication of Mr. Browne, referred to in the above report, was ordered to be placed on filed.

STATED MEETING, DECEMBER 20, 1842.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Specimens, in spirits, of Monitor ornatus, of Monitor ———, of Crocodilus ———, and of Chamæleo gracilis, Hallowell, (male) from Western Africa.

Also a dried specimen of Tetrodon ———, from Western Africa; and a specimen, in spirits, of Coluber coccineus, from Mobile, Alabama. From Mr. John Cassin.

A portion of Fossilized Wood from Northern Mexico. From Mr. McKnight, through Mr. Lukens.

The following Shells were presented through Mr. Phillips by Dr. J. C. Jay, of New York:

Mactra Brasiliensis; Cytherea fulminata, two specimens; Helix

spherica, Sow., two specimens; H. Lamarckii, Sow., two specimens: H. Iloconensis, Sow.; Pupina nuncsii; Egg of Bulimus ovatus.

By Mrs. Lucy W. Say:

Alasmodonta confragosa, two very large specimens; Unio suborbiculatus, Lam., (globulus, Say;) U. apiculatus, Say; U. Nashvillianus, Lea; U. obesus, Lea; U. nasutus, variety.

By Dr. William Walker, of Nashville, Tennessee:

Unio teres; U. sulcatus; U. oriens; U. glans, Say; U. fasciolaris; U. plicatus, Say; U. rectus, Lam.; U. heros, Say; U. olivarius, Raf.; U. truncatus; U. dromas, Lea; U. triqueter; U. interruptus, Raf.; U. capillaris; U. mytiloides, Raf.; U. tæniatus, Con.; U. Haysianus, Lea; U. metanever, Raf.; U. alatus, Say; U. Edgarianus, Lea; U. niger; U. foliatus; U. stegarius, Raf.; U. torsus, Raf.; U. nexus, Say; U. crassus, Say; U. pustulosus, Raf.; U. scalenius, Raf.; U. dilatatus, Raf.; U. lineolatus, Raf.; Melania Troostensis, Lea.

DONATIONS TO LIBRARY.

Annales des Mines. Tome XX., VI Liv. de 1841. In exchange.

Transactions of the American Philosophical Society. Vol. 8. New Series. Part II., 1842. From the Society.

WRITTEN COMMUNICATIONS.

A letter was read from Mr. Henry Piddington, dated Calcutta, February 21, 1842, referring to his published "Note on the Fossil Jaw sent from Jubbelpore by Dr. Spilsbury," (a copy of which is contained in the Library of the Academy,) and requesting attention to the subject of which it treats.

MEETING FOR BUSINESS, AND ANNUAL MEETING.

DECEMBER 27, 1842.

VICE PRESIDENT MORTON in the Chair.

The Annual Reports of the Librarian, of the Treasurer, and of the Publication Committee having been read and adopted, the following Report was presented on behalf of the Botanical Committee and adopted, and ordered to be published in the Proceedings.

The Botanical Committee having, during the present year, completed the arrangement of the extensive and valuable collection of Plants, presented in 1839 by Dr. F. Menké, of Pyrmont, Germany, beg leave to make the following statement, forming the principal portion of their Report, due at this season.

The apparent neglect and delay in the arrangement of this collection on the part of the Committee, may be accounted for by the fact, that at the period of its presentation, preparations were in progress for the erection of the new Hall, and that after the removal of the Museum to the latter, a large portion of the time and attention of the Committee was required, in common with the other members of the Academy, for the disposal and arrangement of its collections in the other departments.

During this period the plants had not been removed from the boxes in which they had been originally sent by Dr. Menké. On examination they were found to be very carefully and closely packed, and to have sustained no injury from dampness, and but comparatively few specimens to have been destroyed by insects. The whole collection had been arranged after the Linnean or artificial system; the plants distributed into fasciculi and labelled accordingly. About two-thirds were well selected and characteristic specimens, in good paper, with labels containing the name with the authority for it, the synonyme, the locality, date of collection, and frequently the name of a donor. The remainder were enclosed in coarse brown paper, without order or arrangement, and although in most cases properly labelled, in many close comparison and study were necessary, in order to determine even the generic character. The localities were chiefly Pyrmont, Brunswick, Bremen, Arolsen, Monspelier and Gottingen. From the celebrated botanical garden in the vicinity of this latter, very many species had been derived. Specimens were occasionally met with from France, the West Indies, Hungary, &c.

The greater part of this collection had been made between the years 1810 and 1815.

Among the names of donors were many distinguished in Botanical Science, as Thunberg, Sprengel, Bernhardi, Prof. Treviranus, Prof. Mertens, Rœmer Goehnat, Lehmann, Salzmann, Rohde, Wendland, Meyer, Shrœder, Ehrenberg, Schmidt, &c.

By a reference to the new catalogue, it will be seen that a large proportion of the genera (and most probably of the species) contained in this collection were already possessed by the Academy. On this account, therefore, and as the number of cultivated specimens was large, the Committee deemed it unadvisable to incorporate it with the Herbarium of the Academy, but concluded upon keeping it entirely distinct, adopting, however, a similar plan of arrangement as in the Herbarium of the Academy, viz., combining, as far as possible, the Linnean or Artificial with the Natural System.

To accomplish this duty occupied the time and attention of the Committee for several months. The best and most characteristic specimens were selected, transferred to paper of uniform size and color, with the generic name attached to the left hand upper corner of the sheet; the genera being arranged in their appropriate natural orders, commencing with those latter which contained the largest proportion of genera belonging to the first Linnean class, and so on proceeding to the last—this being the plan of the Herbarium of the Academy alluded to above.

As thus completed, the collection comprises 1298 genera, including upwards of 7000 species. Of these, 5623 species are Phœnogamous, included in about 130 natural orders; and 1272 species are Cryptogamous. Of the latter, the Ferns embrace 132 species; Equisetum, Lycopodium, and the Marsileaceæ, 29 species; Hepaticæ 65 species; Musci 309 species; Algæ 122 species; Lichenes 152 species; and Fungi 445 species. To these are to be added 18 species of Corallia, and a number of plants to which neither the generic nor specific name was attached.

The whole has been distributed into thirty-seven folio volumes of large size, occupying an entire case six and a half feet high, four feet wide, and twenty-one inches in depth.

The duplicates are very numerous, and will answer for exchanges.

The new catalogue, alluded to above, has been found necessary, on account of there now being two separate collections, the previous catalogue referring but to one. It is furnished with a double column of reference, so that a genus contained in both collections can be very readily found.

A number of donations, some of which are of much value, have been received by the Academy during the year. These have been already noticed in the published Proceedings at the time of presentation.

The chief donors have been our fellow members P. A. Browne, Esq., and Mr. R. C. Taylor; Dr. George Engelmann, of St. Louis, Missouri, and Prof. Short, of Louisville, Kentucky.

The duty of incorporating these donations with the Herbarium has been necessarily deferred until next year.

On behalf of the Committee,

WM. S. ZANTZINGER,
ROBERT BRIDGES,
GAVIN WATSON.

Hall of the Academy, December 27, 1842.

NEW BUSINESS.

Dr. Morton, by permission of the Society, offered the following Resolution, which was unanimously adopted:

Resolved, That the cordial thanks of this Society be tendered to Mr. George W. Carpenter, Treasurer of the Academy, for his zealous and successful discharge of the duties of his office during the sixteen years of his incumbency.

The Society then proceeded to an election for Officers, to serve for the ensuing year.

The following result was annouced by the tellers:

PRESIDENT.

WILLIAM HEMBEL.

VICE PRESIDENTS.

JOHN PRICE WETHERILL,
SAMUEL GEORGE MORTON, M. D.

CORRESPONDING SECRETARY.

WALTER R. JOHNSON, A. M.

RECORDING SECRETARY.

WM. S. ZANTZINGER, M. D.

TREASURER.

GEORGE W. CARPENTER.

LIBRARIAN.

ALFRED L. ELWYN, M. D.

CURATORS.

WILLIAM S. VAUX,
JOHN S. PHILLIPS,
SAMUEL ASHMEAD,
JOHN CASSIN.

AUDITORS.

WILLIAM S. VAUX,
ROBERT PEARSALL,
WM. S. ZANTZINGER, M. D.

PUBLICATION COMMITTEE.

ALFRED L. ELWYN, M. D.
EDWARD HALLOWELL, M. D.
WM. S. ZANTZINGER, M. D.,
WILLIAM S. VAUX,
JOHN S. PHILLIPS.

The balloting for Members and Correspondents then took place, when the following gentlemen were declared duly elected:

CORRESPONDENTS.

Redmond Conyngham, Esq., of Lancaster county, Pennsylvania.
Prof. F. A. Pouchet, of Rouen, France.
Henry Denny, Esq., of Leeds, Yorkshire, England.
Dr. Norwood, of Madison, Indiana.

MEMBER.

Willard M. Rice, of Philadelphia.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. I. JAN. AND FEB., 1843. Nos. 22, 23.

STATED MEETING, JANUARY 3, 1843.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Fringilla Pennsylvanica, var., with plumage mottled gray and white. From Dr. Watson.

Anser hyperboreus. From Great Egg Harbor. Presented by Messrs. Alfred F. Darley and John Cassin.

Gryphœa mutabilis, from the marl of New Jersey. From Dr. Burrough.

Large Quartz geode and Quartz crystals from Louisiana. From Mr. B. F. French, of New Orleans.

Trilobite, from Kinnekulla, Sweden; Coprolite, fossil wood and Belemnites, from the Lias of Lyme Regis, England; and various species of Spirifer, Terebratula and Productus, also from England. Presented by Dr. Morton.

DONATIONS TO LIBRARY.

Northern Lakes and Southern Invalids. By Daniel Drake, M. D. From the Author.

Report of the Secretary of the Navy, (1842.) with accompanying documents. From Prof. Johnson.

Proceedings of the American Philosophical Society for November and December, 1842. No. 24. Vol. II. From the Society.

Boston Journal of Natural History. Vol. IV. No. 2. From the Boston Academy of Natural History.

Brief Remarks on the Diversities of the Human Species, &c. An Introductory Lecture delivered before the Class of Pennsylvania Medical College, November 1, 1842. By Samuel George Morton, M. D. From the Author.

WRITTEN COMMUNICATIONS.

The Corresponding Secretary read a letter from the Secretary of the Boston Academy of Natural History, dated Boston, November 25, 1842, acknowledging the receipt of the Proceedings of the Academy, and of Part II., Vol. 8, of its Journal.

The Chairman read a letter from Dr. Edmund Ravenel, of Charleston, S. C., dated January 2d, 1843, describing a species of fossil Pecten from the tertiary formation in his neighborhood, for which, if new, he suggests the name "Pecten Mortoni."

A printed Circular from M. St. Priest was read, calling attention to two new works, viz.: "Antiquités Mexicaines," and "Encyclopédie du XIX^e^ Siècle," now in course of publication in Paris.

STATED MEETING, JANUARY 17, 1843.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Cubic Iron Pyrites in Chlorite Quartz, Crystals and Opal, Vegetable Impressions, Spirifer in transition limestone, and Siennite, all from the vicinity of Sydney, New South Wales. Presented by Mr. A Demestre, through Dr. Arrott.

Numerous specimens of Paludina subcarinata, from Cincinnati. From Mr. J. G. Anthony.

Specimens, in spirits, of Pholas truncata, with the animals attached, from New York Bay. Presented by Mr. Charles Wheatley.

DONATIONS TO LIBRARY.

American Journal of Science and Arts. Vol. 44. No. 1. January, 1843. From the Editors.

Annales des Mines. Quatriéme Série. Tome I. Liv. 1 and 2. In exchange.

Selections from the Scientific Correspondence of Cadwallader Colden with Gronovius and other Naturalists. Arranged by Asa Gray, M. D. New Haven, 1843. From the Editor.

Rambles in Yucatan, &c. By Benjamin M. Norman. 8vo. New York, 1843. From Dr. Morton.

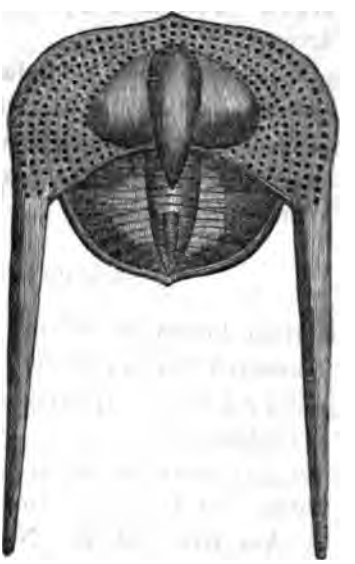
WRITTEN COMMUNICATIONS.

A letter was read from Redmond Conyngham, Esq., dated Oak Hill, near Paradise, Pennsylvania, January 14, 1843,

returning his acknowledgements to the Academy for his election as a Correspondent.

The Chairman read a letter from Mr. W. Byrd Powell, dated Little Rock, Arkansas, December 3, 1842, soliciting exchanges, and desiring information on subjects connected with Natural History.

Also a letter from Professor Locke, of Cincinnati, containing further observations on the subject of the fossil Cryptolithus tesselatus, described by him in a former communication to the Academy, and published in its Proceedings.* In this letter he states, that since the publication of his paper, he has had an opportunity of examining a large number of specimens, which have enabled him to correct his description in several particulars, viz: "The appearance that the shield covered a part of the articulations was accidental; these articulations are six in number, and uncovered by the shield, excepting the outer portion of the anterior costal arches, (*see figure.*) The tail in the most perfect specimen consists also of six articulations, each subdivided by an inferior joint or depression, giving the appearance of twelve articulations. The middle lobe of the tail is itself trilobate, appearing like the whole body of a small trilobate entire."



* See Proceedings for July, 1842, pp. 196, 197.

At the suggestion of the Chairman, the communication from Dr. Ravenel, read at a late meeting of the Academy, describing a new species of Pecten, was referred to a Committee.

Mr. Phillips, Dr. Morton, and Mr. Conrad were appointed as the Committee.

MEETING FOR BUSINESS, JANUARY 31, 1843.

VICE PRESIDENT MORTON in the Chair.

After the Reports of several Committees, and that of the Corresponding Secretary, had been read, the following Annual Report was presented by the Recording Secretary.

REPORT.

In presenting his Report of the operations of the Society during the past year, the Recording Secretary embraces the opportunity of congratulating the members upon the present condition of the Institution, and the flattering prospect which it has of prosperity for the future.

The state of the finances, as appears from the report of the Treasurer, and, to use his words, "is superior to that of any period since its organization." This satisfactory state of things has been occasioned principally by the receipt, in February last, of the sum of $6000, being the balance of the second subscription of the late William Maclure. To his brother and executor, Mr. Alexander Maclure, is the Society under great obligations, for the persevering efforts which were made by him to accomplish this object, and also for the interest which he manifested in the general welfare of our Institution. The Academy has been thereby enabled to liquidate several urgent claims, and greatly to reduce the debt incurred in the purchase of the ground on which the present building is erected.

In addition to this, its funds have been considerably augmented during the last few months by the final and successful settlement of a long pending suit for a claim of upwards of $5000 against the heirs of an unsettled estate. This was a mortgage transferred to the Academy many years since, by the late Wm. Maclure. In consequence of many difficulties and vexatious delays thrown in the way of settlement of this matter, the Academy has hitherto been unable to make this fund in any way available. By a compromise made with the heirs, fourteen per cent. of the

whole amount has been deducted for their use; the balance, amounting to $4549, is in Pennsylvania five per cent. stock, to which is to be added $430 interest, paid in par funds, and $113 in six per cent. Pennsylvania stock, also as interest; the latter being redeemable by the State in August next. In accordance with the desire of Mr. Alexander Maclure, the first mentioned sum will not be appropriated at present by the Academy, but retained until some improvement in the stock occurs, which, it is hoped, will be at no distant date. At all events, the Society has the positive assurance of Mr. Maclure that no loss shall be sustained, and that both principal and interest shall be eventually realised.

For the final adjustment of this affair, the Academy is under great obligations to this gentleman, to the Counsel of the Academy, and to several other members.

The Museum of the Academy has been augmented by large and valuable additions to all its departments during the last year. The details of these presentations, with the names of the donors, have been already given in the published Proceedings of the Academy during the year, and need not, therefore, be repeated here. But a brief mention of the names of those who have contributed most largely in each department is considered due to them, and will not be unacceptable to the Society.

To the Geological department valuable donations have been made by Dr. S. G. Morton, Prof. Locke, of Cincinnati, Geo. R. Gliddon, Esq., of Cairo, Egypt, J. Hamilton Couper, Esq., of Georgia, Mr. Joseph Brano, of Philadelphia, and minor donations by Drs. Chaloner, Watson, Carson and Blanding, and by Prof. W. B. Rogers, of Virginia.

In the Ornithological department the presentations have been large and valuable, and made chiefly by

Prof. Holbrook. of South Carolina, Mr. Charles Twigg, of New Harmony, Indiana, Mr. J. W. Rulon, and also by a club of members. Also by Mr. J. G. Bell, of New York, by the President of the Society, Mr. Wm. Hembel, and by Mr. George W. Carpenter, Dr. William Blanding, and Mrs. William Furness of this city.

To the Cabinet of Shells important additions have been made by Dr. Paul B. Goddard, Dr. Benjamin B. Brown, of St. Louis, Missouri, Mr. J. Hamilton Couper, Dr. Wm. Walker, of Nashville, Tennessee, and Dr. J. C. Jay, of New York. Also by Mrs. Lucy W. Say, Mr. P. H. Nicklin, Mr. Haldeman, Mr. Phillips, Mr. Conrad, Mr. Cassin, &c.

The Botanical department has been indebted for well preserved and interesting donations of plants to

Peter A. Browne, Esq., Mr. Richard C. Taylor, the Rev. J. P. Durbin, Prof. Short, of Louisville, Kentucky, Dr. George Engelmann, of St. Louis, Missouri, J. Frampton Watson, Esq.; and also to Drs. Carson, Godon, and others.

A portion of the Herbarium containing the natural family Compositæ has been carefully examined by Dr. Asa Gray, of New York, in whose hands it had been placed, at his own request, for this purpose, and has been considerably improved, and some additions made to it by him.

A very large collection of plants presented in the year 1839, by Dr.

Menké, of Pyrmont, Germany, has been at length examined and arranged by the Botanical Committee, whose Report states that, as arranged, it contains not less than 7000 species in excellent condition. On account of its size and value they have decided upon keeping it in a separate case from those containing the Academy's Herbarium, and to designate it the "Menké Collection."

Of Minerals, the donations have been chiefly from the following members and others

P. A. Browne, J. Randolph Clay, George R. Gliddon, Wm. S. Vaux, J. A. Clay, Esqs., Dr. Wm. T. Craige, &c.

In the Entomological department we have had but a single donation to record in the past year—that made by Mr. Charles Twigg, of New Harmony, Indiana, of insects of that region. The Secretary, however, has the satisfaction to state, that it is the determination of several members to exert themselves during the coming season, personally, and through friends in the United States, in making collections of American Insects for the Academy. He would respectfully suggest that the aid of Foreign Correspondents be also solicited for this purpose.

To the Museum there has also been added a number of fine Quadrupeds, Reptiles, Fishes, Skeletons of Animals and Crania, by members and correspondents.

The donations made by the different contributors mentioned, are upwards of eighty in number. It would be difficult to form a just estimate of the number of specimens embraced by them; it cannot, however, fall short of from four to five hundred. Taken collectively, they form a mass of great value to the lover of Natural Science, and for which the Academy has every reason to return its thanks to those persons who have thus testified their desire to promote the interests of the Institution.

The Library has received an equal share of consideration. Many of the works presented last year are of great value, and the additions are equal in number to those of former years. The entire number of volumes, pamphlets, works published in parts, &c., added to the Library in 1842. has been one hundred and thirty-two; and of these, according to the report of the Librarian, sixty-nine are new works. For some of these the Academy exchanges its own publications with other Institutions and individuals. A large proportion of them, however, have been voluntary contributions from authors, members, and correspondents.

A new set of cases, occupying the whole extent of the South Flying Gallery, has been recently completed, which adds much to the appearance of the Hall. One-half of these cases has been appropriated to the valuable collection of crania belonging to Dr. Morton, and the remainder to the accommodation of a very extensive series of volumes containing the debates and proceedings of the different legislative bodies of France, during the period of the Revolution. Its great size, in fact, (upwards of 1600 volumes,) has hitherto prevented its introduction into the Hall, lest it should encroach too much on the space in the Library allotted to works of a strictly scientific character. As a full record of the events of that epoch of history, it is highly valuable, and is believed to be possessed by no other Institution

in this country. There are, besides, duplicates of many of these volumes, which the Academy could, without doubt, exchange for scientific works, or dispose of in some other way.

The meetings of the Society have been held with great regularity during the year, at the stated periods, without a single exception, and have been characterized by ample evidences of zeal and interest in the cause of science. Many valuable original papers have been presented, most of which have been published either in the Journal of the Academy, or in its Proceedings, and have contributed still further to advance the high character of our Institution.

The Second Part of the 8th Volume of the Journal was issued about the middle of the year, and besides the papers referred to, contains many well executed and faithful illustrations of the objects which they describe. The Proceedings have been published at intervals of from one to three months. This plan of publication was commenced early in the year 1841, and has been adhered to ever since with advantage to the members and correspondents—affording them a medium for acquainting the scientific public with their discoveries and observations without delay.

Several prominent members have had in view for some time past the reduction of the annual contributions to one-half its present amount, and have only been prevented from bringing the subject before the Society, for its action, from a conviction that its best interests would be consulted by deferring it until something more definite and certain was known respecting the amount of reduction which would be effected in the remaining debt of the Academy during the present year. An effort will then be made at the earliest practicable period to accomplish this object, which, it is believed, is desired by a large majority of the members.

From the statement thus given of the operations of this Society during the past year, it is hoped that the assertion made at the beginning of this report, that its present condition is flattering, will not be considered as having been premature or unfounded.

With no other debt remaining, except the one just referred to—and that in the way of reduction at an early period, and to such an extent as, after its accomplishment, to admit of the Society's appropriating annually a considerable portion of its income to the scientific purposes of the Institution—with a list of nearly one hundred and fifty contributing and resident members, and of three hundred and seventy domestic and foreign correspondents, mostly zealous in aiding the Institution, and in promoting the objects for which it was founded, it is not hazarding too much in expressing the belief that by a steady continuance of these efforts, and a prudent management of its financial concerns, its prosperity must henceforth be permanent.

Twenty-five years only have elapsed since this Institution was incorporated. It is therefore still in its youth. In that time it has advanced from comparative unimportance, to a consequence and standing which the most sanguine of its founders could scarcely have anticipated. To the industry, talent, zeal and liberality of many of its members, is this to be

attributed, but chiefly to the aid derived from its early friend and patron the late Wm. Maclure.

For conducting it through many difficulties during the early part of this period; for furnishing the principal portion of the means for erecting the edifice in which we are now met; and for the abundant evidences of his generosity in every direction around us in this Hall, do we owe him our grateful acknowledgements. A distinguished member of this Society, who is himself one of its warmest and most active friends, and who has contributed in no small degree to its advancement, has already done ample justice to the memory of Mr. Maclure for these acts.* But there still remains with us the obligation, which is of no light character, to use every suitable endeavor to place this Institution in that elevated position which, in making it the special object of such munificence, it was the design of Mr. Maclure it should hold.

All which is respectfully submitted, by

WM. S. ZANTZINGER,
Recording Secretary.

Hall of the Academy, January, 1843.

An alteration of Article VII, Chapter 3, of the By-Laws, proposed at a former meeting, was then unanimously adopted. The By-Law, as amended, now requires of "Correspondents residing in the United States," elected after this date, "a Diploma fee of five dollars."

The Report of the Auditors on the Treasurer's account for 1842, was then read and accepted; and the Society, after having transacted some other business, proceeded to an election for Standing Committees for the year 1843.

The following result was announced by the Tellers:

COMMITTEES FOR 1843.

GEOLOGICAL AND MINERALOGICAL.

J. Price Wetherill, William S. Vaux,
Henry D. Rogers, Walter R. Johnson,
Joseph A. Clay, T. A. Conrad,
Willard M. Rice.

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*"Memoir of William Maclure, Esq.," and "Notice of the Academy of Natural Sciences of Philadelphia," by Samuel George Morton, M. D.

ZOOLOGICAL.

S. G. Morton, M. D. E. Hallowell, M. D.,
Henry McMurtrie, M. D., S. S. Haldeman,
John S. Phillips, Edward Harris,
John Cassin.

BOTANICAL.

James Read, Robert Bridges, M. D.,
Peter A. Browne, Wm. S. Zantzinger, M. D.,
Gavin Watson, M. D.

PHYSICS.

Isaiah Lukens, Paul B. Goddard, M. D.,
Walter R. Johnson, J. S. Phillips,
Edmund Draper.

LIBRARY.

A. L. Elwyn, M. D., A. D. Chaloner, M. D.,
R. Bridges, M. D., Joseph Carson, M. D,
Wm. S. Zantzinger, M. D.

COMMITTEE ON PROCEEDINGS.

S. G. Morton, M. D.,
A. L. Elwyn, M. D.,
John S. Phillips,
} Corresponding and Recording Secretaries, *ex-officio*.

The following gentlemen were elected Members of the Academy:

Elisha K. Kane, M. D., of Philadelphia.
Samuel B. Ashmead, of Philadelphia.

The following Correspondents were also elected:

M. Arago, of Paris.
The Baron Alexander Von Humboldt.
John Gould, F. L. S., of London.
Prof. John Phillips, of York, England.
B. F. French, Esq., of New Orleans.

STATED MEETING, FEBRUARY 7, 1843.

VICE PRESIDENT MORTON in the Chair.

WRITTEN COMMUNICATIONS.

A letter was read from J. G. H. Kinberg, of Lund, Sweden dated October 25, 1842, proposing exchanges in Natural History.

A communication from the American Philosophical Society, acknowledging the receipt of the last No. of the Academy's Proceedings.

A Circular from the Medical Department of the National Institute at Washington, soliciting communications, and proposing inquiries on certain medical subjects.

And a letter from Prof. Locke, dated Medical College, Cincinnati, Ohio, January 23, 1843, describing some extraordinary and beautiful forms of Sulphate of Lime, or fibrous Gypsum, found in the Mammoth Cave, Kentucky.

For these, as being a peculiar variety of this mineral, he suggests the new name of "Oulophyllites."

Prof. Johnson read an extract from a letter from Prof. F. W. Johnston, of Durham, England, announcing the characters of a new species of sugar resembling mannite in appearance, but in the crystalline state having the constitution of grape sugar, viz.: Carbon 24, Hydrogen 28, and Oxygen 28; but losing by heat seven atoms of water, becoming Carbon 24, Hydrogen 24, Oxygen 24.

This sugar drops from certain species of *Eucalyptus*, which abound in Van Dieman's Land and in New Holland. It is not so sweet as grape sugar, and is not likely, therefore, to meet with any extensive economical application. Theoretically, however, it is very interesting.

STATED MEETING, FEBRUARY 21, 1843.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

A Collection of American Insects, (about 25 species.) Presented by Mr. Samuel B. Ashmead.

A Collection of Shells from Great Egg Harbor. From Mr. Thomas Beasley, through Mr. Ashmead.

DONATIONS TO LIBRARY.

Survey of the Boundary between the United States and Texas. From Major Graham, U. S. Topographical Engineer.

Report of Dr. Lewis C. Beck on the Mineralogical and Chemical Department of the Survey of the State of New York, and

Report of Dr. Torrey on the Botanical Department of the same. From Dr. Morton, in exchange.

WRITTEN COMMUNICATIONS.

A letter was read from Major J. D. Graham, accompanying his donation above mentioned.

VERBAL COMMUNICATIONS.

Professor Johnson exhibited some samples of sheathing copper from the bottoms of vessels, which showed the effects of corrosion and attrition after it had been in use but a very limited period, and alluded to the great deterioration, of late years, in the quality of the commercial article, both in this country and abroad.

As it was highly important to the interests of Commerce and of the Navy that some test should be had which might be conveniently put in use for ascertaining the degree of purity of sheathing copper; and as chemical tests were not always at hand, or readily applied by inexperienced persons, Prof. Johnson had invented an apparatus, of simple construction and easy management, called a *test vice*, which he exhibited and explained, by means of which the degree of tenacity of portions of sheathing copper could be readily ascertained.

Strips of copper from different sources, about an inch in width, were then subjected to the test, and their comparative value determined by the number of *bends* which they would bear until fracture was produced.

Prof. Johnson also exhibited two specimens of Cannel Coal, one termed by him *slaty* Cannel, from Kentucky, and the other from Missouri, called *floating* Cannel, from the circumstance of its floating on water, which fluid it afterwards absorbs, and then sinks. Prof. Johnson also gave the results of his analysis of these coals, which accorded in most respects with that of the Cannel Coal of Scotland, as obtained by Mr. Richardson.

MEETING FOR BUSINESS.

FEBRUARY 28, 1843.

VICE PRESIDENT MORTON in the Chair.

The Society, after receiving the Reports of several Committees, and the monthly Report of the Corresponding Secretary, and transacting some general business, proceeded to an election for Correspondents with the following result:

CORRESPONDENTS.

William G. Lettsom, Esq., Attaché to her Britannic Majesty's Legation at Washington.

S. Henry Dickson, M. D., of Charleston, South Carolina.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. I. MARCH AND APRIL, 1843. Nos. 24, 25.

STATED MEETING, MARCH 7, 1843.

Professor ROGERS in the Chair.

DONATIONS TO MUSEUM.

A specimen of Posidonomia minuta, from the New Red Sandstone of Prince Edward county, Virginia. Presented by Prof. Wm. B. Rogers, of Virginia.

A mounted specimen of Sciurus ——, from Western Africa. From Mr. Cassin.

A Collection of Parasitic Worms contained in 76 phials, from Germany. Presented by Mr. William G. Burke, through Mr. Cassin.

A Copper Apparatus of large size, intended for disinfecting zoological specimens by means of heat. Presented by a Club of Members.

DONATIONS TO LIBRARY.

A Flora of North America. By John Torrey and Asa Gray. Vol. 2, Part III. New York and London, 1843.

VERBAL COMMUNICATIONS.

Professor Rogers remarked, in reference to the fossil specimen presented this evening by his brother, that no recent contribution to our Palæontology was more interesting at this time than the discovery, by the latter, of this familiar European species, in a particular division of the New Red Sandstone of Virginia. Being an abundant and characteristic shell of the Upper New Red Sandstone of Europe, its occurrence in this country is regarded by Prof. W. B. Rogers as affording the first decisive indication of the precise date or equivalency of the extensive American formation already referred by Prof. Hitchcock, by himself and other Geologists, to the general Poikilitic or New Red Sandstone period.

STATED MEETING, MARCH 14, 1843.

VICE PRESIDENT MORTON in the Chair.

WRITTEN COMMUNICATIONS.

Mr. Phillips read a communication addressed to the Academy, from Mr. John G. Anthony, of Cincinnati, Ohio, dated February 19, 1843, of which the following is a portion.

"By the published transactions of the American Philosophical Society for 16th December last, I perceive that Mr. Lea has described twelve species of Melania from Alabama and Tennessee. One of these, under the name of 'M. excisa,' he proposes to erect into a new genus, under the name of 'Schizostoma,' on account of the deep slit in the lip. Having possessed specimens from the same localities for some time past, embracing, as I believe, seven or eight species of this proposed genus, I have referred them to Swainson's genus 'Melatoma,' founded, as he states, 'upon a Shell sent him many years ago by his old friend Professor Rafinesque, and which, he says, has the general form of Pleurotoma mela fusus, with a well defined sinus or cleft near the top of the outer lip.' I have mentioned this with a view to call the attention of the members to it, and to have the question of nomenclature settled correctly. I have, within two months past, received one species of this genus from Dr. Mighels, of Portland, Maine, under the name of 'Apella scissura.'"

The communication was accompanied by a second and corrected edition of his Catalogue of the Terrestrial and Fluviatile Shells of Ohio.

Mr. Cassin read a paper intended for publication, and entitled "A Description of several new and rare Birds from the Rocky Mountains and California, by William Gambel:" which was referred to Messrs. Cassin, Phillips and Haldeman, as a Committee.

The Corresponding Secretary read letters from M. Flourens, Perpetual Secretary of the Royal Academy of Sciences of France, dated Paris, January 19, 1843, and from Prof. Berzelius, Perpetual Secretary of the Royal Academy of Sciences at Stockholm, dated November 7, 1842, severally acknowledging the receipt of copies of the Proceedings, and other publications of the Academy.

Also a letter from Mr. B. F. French, of New Orleans, acknowledging the receipt of his notice of election as a Correspondent.

VERBAL COMMUNICATIONS.

Dr. Cogswell, Secretary and Librarian of the Northern Academy of Arts and Sciences at Hanover, New Hampshire, then briefly addressed the Society in reference to the origin and design of that Institution, and on its behalf solicited several volumes of the Journal of the Academy, which it was desirous of possessing in order to complete its series of the same.

The Chairman announced that Mr. John James Audubon and Mr. Edward Harris, accompanied by an artist, left this city yesterday morning on their route to St. Louis, and thence to the sources of the Yellow Stone River and the Rocky Mountains. The object of this expedition is the discovery of new species of Birds and Quadrupeds for the works of Mr. Audubon, and especially for his Mammalogy of North America, now in course of publication. The expedition is expected to return in October, and promises important additions to every department of natural science.

The Chairman also called the attention of the Society to the first number of Mr. Audubon's "Quadrupeds," which is placed in the Hall for inspection, and for the subscription of such members and others as may desire to possess this truly splendid and invaluable work.

BUSINESS BY SPECIAL RESOLUTION.

On motion of Dr. Elwyn,

Resolved, That the Publication Committee be authorized to present to the Northern Academy of Arts and Sciences, the 2d, 3d, 4th and 5th volumes of the Journal of the Academy; and also, to Mr. Charles Lyell, Corresponding member, the Second Part of Volume 8 of the same.

Professor Rogers offered the following Resolution, which was adopted:

Resolved, That a Committee of three members be instructed to transmit to Messrs. Audubon and Harris a series of inquiries relative to the geology of the country which will be traversed by them in their projected journey to the Rocky Mountains, with a request that they may submit the result of their observations to this Society.

Prof. Rogers, Prof. Johnson, and Dr. Morton were appointed the Committee.

STATED MEETING, March 21, 1843.

Mr. Pearsall in the Chair.

DONATIONS TO LIBRARY.

Geology and Mineralogy considered with reference to Natural Theology. (Bridgewater Treatise.) By the Rev. William Buckland, D. D. 2 vols. 8vo. Philadelphia, 1837. From Prof. Rogers.

Fisk Fund Prize Dissertation of the Rhode Island Medical Society, No. VII. On Spinal Diseases. By Usher Parsons, M. D. Boston, 1843. From the Author.

Description of the Skeleton of the extinct Gigantic Sloth, Mylodon robustus, Owen. By Richard Owen, F. R. S., &c. 4to. London, 1842. From the Author.

Several Charts on a large scale, illustrating the Boundary of the United States and the Republic of Texas, from the mouth of the River Sabine to the Red River, as surveyed and marked conjointly by the Commissioners of the two Governments in the years 1840 and 1841. From Major J. D. Graham, U. S. Topographical Engineer.

VERBAL COMMUNICATIONS.

Prof. Rogers addressed the Society in relation to the recent Earthquakes, and stated a number of interesting facts connected with this subject, which in due time he proposes to commit to publication.

BUSINESS BY SPECIAL RESOLUTION.

Professor Rogers, from the Committee appointed at the last meeting to address a series of enquiries to Messrs. Audubon and Harris, respecting the geology of the western country, on leave granted, submitted a Report embracing seventeen queries.

The Report was adopted, and ordered to be placed on file.

MEETING FOR BUSINESS, March 28, 1843.

Vice President Morton in the Chair.

The Society, having completed its ordinary business, proceeded to an election for Members and Correspondents, when the following gentlemen were announced duly chosen:

MEMBER.

Hon. Edward King, President Judge of the First Judicial District of Pennsylvania.

CORRESPONDENT.

Professor Kesteloot, of Ghent.

STATED MEETING, April 4, 1843.

Vice President Morton in the Chair.

DONATIONS TO MUSEUM.

Green Quartz and Pyrope from Delaware county, Pennsylvania. From Mr. Cassin.

Six skins of Birds (Falconidæ) from South Africa. From Dr. Watson.

DONATIONS TO LIBRARY.

Schriften der in St. Petersburg gestifteten Russisch-Kaiserlichen Gesellschaft für die gesammte Mineralogie. I^{e} Band,

I^ste. & II^te. Abtheilung mit Steindrucktafeln. St. Petersburg, 1842. From the Imperial Mineralogical Society, through Charles Cramer, Esq.

WRITTEN COMMUNICATIONS.

A letter was read from Dr. S. H. Dickson, dated Charleston, South Carolina, March 26, 1843, acknowledging the receipt of his notice of election as a Correspondent of the Academy.

Also a letter from Mr. J. H. Redfield, Corresponding Secretary of the New York Lyceum of Natural History, dated March 21, 1843, acknowledging the receipt of the Proceedings of the Academy.

VERBAL COMMUNICATIONS.

Prof. Henry D. Rogers drew the attention of the Society to the stratigraphical features of the environs of St. Petersburg, as represented in the maps and sections appended to the volume of "Publications of the Imperial Russian Society," just laid upon the table. He pointed out, in particular, the perfect identity in the form of the Russian anticlinal flexures and these of the Appalachian chain of the United States; the resemblance consisting in the want of a symmetrical curvature in the arches, and an inequality in the steepness of the dips on the opposite sides of the axes.

Alluding to the structural laws first developed by his brother and himself from a study of the Appalachian chain, and conceived by them to characterize regions of anticlinal axes generally, he proceeded to show that upon the theory of the origin of these flexures, the same style of curvature should be met with in all countries, as a necessary consequence of the universality of those laws. The exhibition, therefore, of an anticlinal arch, having the normal form, in the banks of the Pulkowka in Russia, goes to confirm the generalizations of these authors. Instances of the same characteristic feature are to be met with abundantly, however, in the sections which geologists present of the stratification in many other districts of Europe.

BUSINESS BY SPECIAL RESOLUTION.

On motion, Resolved, That the Publication Committee be authorised to present to the Naval Lyceum, Brooklyn, the Second Part of Volume 8, of the Academy's Journal.

STATED MEETING, APRIL 11, 1843.

Dr. PATTERSON in the Chair.

DONATIONS TO LIBRARY.

The Natural History of British Shells, including figures and descriptions of all the species hitherto discovered in Great Britain, &c. 5 vols. 8vo. By E. Donovan, F. L. S. London, 1804. From Mrs. Lucy W. Say.

Ancient Egypt; her Monuments, Hieroglyphics, History and Archæology, and other subjects connected with Hieroglyphical Literature. By George R. Gliddon, late U. S. Consul at Cairo. New York, 1842. From the Author.

WRITTEN COMMUNICATIONS.

Communications were read from the American Philosophical Society, dated January 6, 1843, and from G. E. Dennis, Honorary Secretary of the London Botanical Society, acknowledging the receipt of the Proceedings and other publications of the Academy.

MEETING FOR BUSINESS.

APRIL 25, 1843.

VICE PRESIDENT MORTON in the Chair.

The Monthly Report of the Corresponding Secretary was read and adopted.

The Committee, consisting of Prof. Johnson, Mr. Haldeman, and Mr. Peale, to whom was referred, in November, 1842, a communication from Peter A. Browne, Esq., accompanying some specimens of an earthy matter from Lancaster county, Pennsylvania, supposed to be identical with Terra di Sienna, made a report, which was adopted. The report stated that after a careful investigation of the subject, and comparisons in several modes with the genuine article, the Committee had formed the following conclusions:

"That the earth in question is a hydrated silicate of Alumina tinged with variable proportions of peroxide of iron; 8.17 grs. of one of the best samples having been calcined at redness for twenty minutes in a platinum capsule, left 6.74 grs. of dark brown fragments, showing a loss of 17.5 per cent. of water"—"and that for certain minor purposes in the arts, this coloring matter may be highly useful, but as a general substitute for Terra di Sienna, it cannot be expected to gain the approbation of artists."

The Committee, consisting of Mr. Cassin, Mr. Haldeman, and Mr. Phillips, to whom was referred Mr. William Gambel's* paper, entitled "Descriptions of some new and rare Birds of the Rocky Mountains and California," reported in favor of its publication, with the exception of the generic and specific characters of the Eudromus variegatus of that paper, which they deem it expedient to defer until the receipt of the specimen.

* This gentleman has just completed the tour of the Rocky Mountains and California, at the instance of Mr. Nuttall, to whom this paper was originally addressed, and by him referred to the Academy for publication.

PICUS * *Nuttalii.*

Male, varied with black and white; back transversely banded with black and white; upper part of the head black with linear white spots; hind head with a broad red stripe; sides of the head and neck black, with a wide stripe running from the base of the bill about the length of the head, also white stripes running from the eyes and uniting on the back of the neck, which is black. Rump and two middle tail-feathers black. Wing-feathers on their outer and inner webs, with six or seven bands of white spots; all the wing coverts also with white spots; tips of some of the tertiaries light brown. Beneath white, with a slight tinge of yellow; sides and vent with dark brown spots; lower tail coverts and tail-feathers, except the two middle ones, white, with irregular bands or spots of dark brown; throat and breast white; second quill shorter than the seventh; third, fourth, and fifth nearly equal. Two white tufts of hair-like feathers at the base of the upper mandible. Irides red. Length seven inches.

This pretty species I shot in a willow thicket near the Pueblo de los Angelos, Upper California, December 10th. It was actively engaged pecking into one of the trees; from time to time uttering a singular note, unlike any I have heard from a woodpecker. It is, perhaps, a common species in the summer time.

PARUS * *montanus.*

Male.—Head, upper part of the back, throat, and upper part of the breast pure black; two white stripes commence on the front and extend over the head about the length of it, leaving a black band in the centre and a stripe running over each eye to the nape; cheeks and shoulders white. Wings and tail brownish grey; beneath whitish; tinged with brown on the sides and vent. Legs bluish. Length a little over five inches. Tail two and a half inches.

This new and distinct species we first observed about a-day's journey from Santa Fe, in New Mexico, and from thence in all the ranges of the Rocky Mountains nearly to California. Its manners and notes are very much like those of the common Chickadee, but the latter are more weak and varied. It keeps also much in low bushes, where from morning to night, with untiring patience and activity, it may be seen hopping from bush to bush, searching them minutely for small insects. It also frequently descends to the ground to pick up small seeds; when thus occupied it occasionally stops, looks around and utters a slender tē dē dē dē, then altering to dē dē dāit, flies off to some other bush. On the Rio Colorado it keeps much in the cotton wood trees which grow along its banks, and its notes, which became familiar, were almost the only ones heard in the winter, when we were there, to cheer our course. This species is sometimes seen in company with the P. minutus, Town., and Regulus calendula,

which at this time are roving in large and busy flocks along the small streams. It is probably found also in the mountains of California.

FRINGILLA *Blandingiana.*†

Male.—Above olive green tinged with cinereous and brown. Crown rufous red; front, line over the eye, ears, and breast cinereous; throat pure white; a white line also running from the base of the lower mandible to the neck, below which is a line of blackish tipped with cinereous. Sides brownish; belly and vent white; wings and tail brown; wing coverts, margins of the primaries and secondaries and tail feathers, especially near the base, bright yellowish green; tail beneath pale green. Length six and a quarter inches. Feet and legs stout, brown; tarsus and middle toe, with the nail, seven-eights of an inch in length; hind toe nail longer than the toe; bill above dark brown, beneath paler.

Of this new and singularly marked species I procured a single specimen only, in September, on the bank of a small stream in the Rocky Mountains, about half way between New Mexico and the Colorado of the west. It kept in low bushes in company with the F. guttata, Nutt., and F. graminea, occasionally uttering a single chip. The throat and breast of this species very much resemble those of the F. Pennsylvanica.

LOPHORTYX * *Gambelii*, Nutt.

Cinereous-brown above; head bright rufous; crest of six black feathers one and three-fourths inches long, wide at the tips and curving forwards; throat black, banded by a line of white; front of long grayish and black bristly feathers, with a band of white across them near their tips, which extends over the eye to the back of the head; feathers of the neck and upper part of the back small, cinereous, each with a central streak of dark rufous; upper part of the breast and shoulders cinereous; lower part of the breast cream colored; middle of the belly black; flanks dark rufous; each feather with large a lanceolate central spot of pure white; tertiaries edged on their upper margins with yellowish white; tail rounded, cinereous blue: under coverts with dark brown spots. Length a little over ten inches. Wings four and a half; fourth quill longest; second and seventh equal. Bill black. Feet and legs dull bluish. Tarsus one and a quarter inches. Tail four and a half.

We met with small flocks of this handsome species some distance west of California, in the month of November, inhabiting the most barren brushy plains, covered with a species of Chenopodium. Here, where a person would suppose it to be impossible for any animal to subsist, they were seen running about in small flocks of five or six, occasionally uttering a low guttural call of recognition, some-

† In honour of Wm. Blanding, M. D., of Philadelphia.

times of several notes, very different from that of the common species. When flying they utter a loud sharp whistle, and conspicuously display the long crest.

LANIUS *elegans*. White winged Shrike, Swains.

This species, of which but a single specimen is known to Ornithologists, I found abundant in California, in the brushy plains, and sometimes in the hedges near the towns; it flies close to and frequently alights on the ground and on low weeds; when flying, its white banded wings can be seen very distinctly; in the adults the breast is pure white; in the young blended with dark brown, like our common species, except the throat and vent, which are white; sometimes, when disturbed, it has a harsh crying note like a jay, pây pây pây.

SYLVIUS *tenuirostris?* Swains. Synopsis Birds of Mexico?

Above olive brown; beneath tawny yellow; sides of the throat, with the breast and sides, marked with irregular streaks and spots of dark brown; a yellowish white line over the eye; throat, belly, and vent without spots. Wings and tail blackish brown, the feathers margined with yellowish white; two outer tail-feathers almost wholly white; the second merely tipped with the same. Length six inches; tarsus seven-eights of an inch; hind toe nail as long as the toe. Bill slender; half an inch in length.

We met with this species only on the Rio Colorado; at that time (October) keeping in small flocks along the bank of the river, sometimes wading in the water to pick up whatever they might find in the mud, with which their bills were covered. When sitting they jerked their tails in the manner of the S. Noveboracensis, which they somewhat resemble; they also uttered, when flying, a few slender notes.

Swainson questions the S. tenuirostris being found on the table land; This species, I should think, was not, from its habits, although I saw a few specimens among some sage bushes (Artemisia) near the river.

PTILOGONYS *Townsendii*, Aud., Nutt.

This rare and singular bird, of which but a single specimen has been obtained in Oregon, I first met with, in October, on the banks of a small, rocky creek, in the Rocky mountains, between the Rio Colorado and California. Here, in the depth of solitude, it was flying along the stream, alighting on the rocks, and jerking its tail in a lively manner, feeding solely on buffalo berries (Shepherdia) which grew plentifully along its banks, and with which its stomach was crammed. We afterwards found it on one of the highest and most desolate mountains, near a small pool of water, to which, towards evening, various kinds of birds came to drink, and among them two individuals of this species, which I killed; but these, like the specimen procured by

Mr. Townsend, were females, as are all the specimens I have obtained It appeared to have somewhat the manner of a fly-catcher, and I never heard it utter a note.

TURDUS *nanus*, Aud., Nutt.

This small and, I think, perfectly distinct species, we saw frequently in the Rocky mountains, frequenting low solitary places, and keeping much on the ground. In California, and also near the Pueblo de los Angelos, in January, I have seen several specimens in the willow hedges and brushy places in company with the sparrows. Though it resembles, in general appearance, the T. solitarius, it may easily be distinguished by its smaller size, never exceeding six inches in length.

FRINGILLA *Gambelii*, Nutt., Man. of Ornith.

This species, procured in Oregon by my friend Mr. Townsend, was very common on the road from near New Mexico to California, where it is also seen in almost every hedge in company with F. leucophrys, to which it is closely allied, if not the same species.

ERYTHROSPIZA *frontalis*, Bonap.

In California this species is extremely abundant at the time we were there, (January,) keeping in small flocks in the neighborhood of the towns, and frequently in the gardens in company with various species of sparrows. It has much the habit of E. purpurea, but is more familiar. In Santa Fe, in New Mexico, it builds its nest under the portals of the houses in the public square, and alights familiarly about the doors; in July they had fledged young. They also appeared here to have a partiality for meat, which is frequently hung up in the sheds, eating it greedily whenever they had an opportunity. In California, also, I have observed them examining the sheds and portals, perhaps for places suitable for building their nests.

DEFERRED BUSINESS.

The Society then proceeded to the consideration of two Resolutions offered at previous meetings, to alter Article I., Chapter III., of the By-Laws, reducing the amount of the initiation fee from $10 to $5; and Article 3d of same Chapter, reducing the amount required to constitute a Life Membership from $80 to $50—both of which were adopted.

NEW BUSINESS.

Dr. Morton stated that he had deposited in the Academy a large number of valuable letters and papers which had been placed in his hands by General Parker, Administrator to the Estate of the late Zaccheus Collins, embracing the Botanical Correspondence of the latter with Muhlenberg, Baldwin, Elliott, Bigelow, Schweinitz, Nuttall, and other American Naturalists; whereupon a resolution was adopted instructing the Botanical Committee to collate and arrange these manuscripts and have them bound and placed in the Library of the Academy.

ELECTION.

Robert Kilvington, of Philadelphia county, was elected a Member of the Academy.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

Vol. I. MAY AND JUNE, 1843. Nos. 26, 27.

STATED MEETING, May 2, 1843.

Dr. Bridges in the Chair.

DONATIONS TO MUSEUM.

Large and fine specimen, in spirits, of Exocetus exiliens, from the Gulf of Mexico. Presented by Dr. Carson.

Specimen, in spirits, of Elaps ———, from South Carolina; and an Agaricus, from the same. Presented by Mr. James Read.

Ferruginous Quartz, from Spain; Bituminous Coal, from Hawesville, Kentucky; Disthene and Staurotide, from Mount St. Gothard; and two specimens, male and female, of Scarabæus tityus, from New Harmony. Presented by Dr. D. D. Owen, of New Harmony, Indiana.

Volcanic scoriæ, vitrified lava and granular lava, from the great crater of Kilauea, on Hawaii. Presented by Dr. Thomas Lafon.

Capsules of Bombax heptophylla; an Indian axe; and several geological specimens, from the Island of St. Croix. Presented by James Codwise, Esq., U. S. Vice Consul, through P. A. Browne, Esq.

DONATIONS TO LIBRARY.

Fifty-sixth Annual Report of the Regents of the University of the State of New York. Albany, 1843. From the Regents.

Transactions of the American Philosophical Society. Vol. 8. New Series. Part 3. 1843. From the Society.

Proceedings of the same for January, February and March, 1843. Vol. 2. No. 25. From the same.

American Journal of Science and Arts. Vol. 44. No. 2. April, 1843. Conducted by Prof. Silliman and B. Silliman, Jr. From the Editors.

WRITTEN COMMUNICATIONS.

Circular invitation from the National Institute at Washington to the meeting of the "Association of American Geologists and Naturalists," to be held at Washington, in April, 1844.

Communication from the Northern Academy of Arts and Sciences at Hanover, New Hampshire, dated April 27, 1843, returning acknowledgements for the late donation by the Academy of several volumes of its Journal.

A letter from Mr. Wm. E. Moore, dated City of Para, Brazil, March 3, 1843, tendering his services in making collections of Zoological specimens in that country.

VERBAL COMMUNICATIONS.

Dr. Elwyn exhibited a portion of oil from Indian corn, received through Mr. Charles Tracey, of Utica, New York, in which place it is now made on a large scale. Dr. Elwyn referred the members for information respecting the mode of obtaining the oil to an article on the subject in Vol. 44 of Silliman's Journal.

STATED MEETING, MAY 9, 1843.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Several specimens of Orthoceras, from Orwigsburg, Pennsylvania; and Indian arrow heads, found in Columbia county, Pennsylvania. Presented by Mr. J. A. Lessig.

Various specimens of the fossil genera Favosites, Madrepora, Cyathophyllum, and Orthoceras in Limestone, from Indiana. Presented by Dr. Edward Fussel, of Indiana.

Crinoid organic remains, from the Limestone of Missouri. Presented by Dr. Benjamin B. Brown, of St. Louis, Missouri, through Dr. Morton.

DONATIONS TO LIBRARY.

Reply of Col. Abert and Mr. Markoe to the Hon. Mr. Tappan, of the U. S. Senate. From the Authors.

A Geological History of Manhattan, or New York Island. By Issachar Cozzens, Jr. New York, 1843. From the Author.

Medical and Physical Memoirs. By Charles Caldwell, M. D. Philadelphia, 1801. From Mr. Phillips.

Historiæ Amphibiorum Naturalis et literariæ fasciculus primus continens Ranas, Calaminatis, &c. Auctore J. Gottlieb Schneider. From the same.

The Magazine of Natural History, and Journal of Zoology, Botany, Mineralogy, &c. 19 Nos.; from January, 1831, to February, 1835. From Dr. Morton.

The Natural History of Barbadoes, in ten books. By Griffith Hughes. London. 1750. Folio. From the same.

Hymenopterorum ichneumonibus affinium monographiæ genera Europæa et species illustrantes. Scripsit Christ. Godofr. Nees ab Esenbeck. Stuttgartiæ et Tubingæ, 1834. 8vo. From Dr. Morton.

Monographia Tenthredinetarum synonimia extricata. Auctore Le Peletier de St. Fargeau. Paris, 1823. From the same.

Chemische und Mineralogische geschichte des Quecksilbers abgefafst. Von George Freiderich Hildebrandt. Brunswick, 1793. From the same.

Anleitung zum selbststudium der Oryktognosie in technischer Beziebung. Von Karl Borziworg Presl. 2 parts. Prague, 1834. From the same.

Versuch einer anleitung zur Geologischen kenntnis der Mineralien. Von H. F. Link. Gottingen, 1790. From the same.

Albaro Alonzo Barba eines Spanischen Priesters und Hocherfanren Natur-Kündigers docimasie, &c. Vienna, 1749. From the same.

Enleitung zur kenntniss und Gebrauch der Foszilien fur die Studirenden. Von J. A. Scopoli. Riga, 1769. From the same.

Pyritologia oder Rieshistoire als dos vornehmsten minerals, &c. Von J. Freiderich Henckel. Letpsig, 1754. From the same.

WRITTEN COMMUNICATIONS.

The Corresponding Secretary read two communications from the Linnean Society of London, dated December 22, 1842, and February 10, 1843, acknowledging the receipt of the Proceedings, and of the last number of the Journal of the Academy.

VERBAL COMMUNICATIONS.

Mr. Haldeman exhibited a number of relics taken from the grave of an Indian, among which were some portions of human bone, and several small metallic cones enclosing human hair. All which were in contact with the metal, or in its immediate vicinity, were in a high state of preservation. Mr. Haldeman inquired whether this preservation might not be accounted for on the principle of galvanic action.

Dr. Bridges believed that the presence of the copper was alone sufficient to account for it; the bone particularly would be found, on close inspection, to be hardest and best preserved in those parts of it most deeply coloured by the copper.

STATED MEETING, MAY 16, 1843.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Skins of the following Birds, from Western Africa, were presented by Mr. Cassin, viz:

Chizærhis variegata,	Lanius cissoides,
Centropus Senegalensis,	—— mollissimus,
Pterocles tricinctus,	Buphaga Africana,
Merops hirundinacea,	Lamprotornis leucogaster.
—— erythropterus,	

Cast or model of the stump of a fossil tree, found near New Harmony, Indiana. This cast represents but one-fourth the size of the original specimen, which is nearly two feet in height, and from nine to ten inches in diameter. Presented by Dr. D. D. Owen, of New Harmony.

VERBAL COMMUNICATIONS.

Dr. Owen accompanied his presentation with the following remarks, explanatory of the geological position of these fossil trees:

They were discovered twelve miles from New Harmony, in excavating in a slaty clay in the bank of Big Creek, a tributary of the Wabash, about fifteen feet below the surface, and about the same distance above the bed of the stream. Since the first commencement of operations there have been found, as nearly as can be ascertained, from twenty to twenty-five stumps, though the whole superficial area of the excavation is only about 3000 feet. They were all standing erect, and nearly on the same general level. Dr. O. had himself excavated three; the largest of these was about three

feet in height and sixteen inches in diameter. All of them were provided with well preserved roots, ramifying in the substance of the surrounding argillaceous deposite.

About one foot above the fossil trees is a layer of sandstone, and a partially disintegrated seam of coal a few inches thick; fifteen feet below, and beneath the water in Big Creek, is a seam of coal supposed to be from three to four feet thick. Nodules of argillaceous iron ore are disseminated in the surrounding slaty clay. No appearance of a dirt bed was discovered.

The horizontal section of these trees exhibits no medullary rays nor annual growths; but the structure of the bark is visible on the external part of most of the specimens, and part of it is generally converted into a dark carbonaceous substance. The scars, left from the falling off of the leaf-stalks, though small, are distinctly visible in some of the smaller specimens. From the diameter of these scars being longer horizontally than vertically, and the absence of parallel flutings, these monocotyledonous fossil trees are considered as belonging to the family of palms.

With the exception of the fossil palm trees, found at Dixon fold, on the Bury and Bolton Railroad, in England, this appears to be the only authentic instance of the occurrence of well preserved specimens of fossil palm trees in strata of the arboniferous epoch.

STATED MEETING, MAY 23, 1843.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

Mr. Phillips presented upwards of 200 plates of Guérin's "Magasin de Zoologie" in exchange for several duplicate volumes of the Encyclopedie Methodique.

The Botanical Committee presented a "New Index" to the Herbarium of the Academy, with an index, in addition, to the "Mencké Herbarium," in manuscript. The two collections now embrace nearly 3000 genera.

WRITTEN COMMUNICATIONS.

An invitation from the American Philosophical Society to attend the celebration of its Centennial Anniversary on the 25th inst.

VERBAL COMMUNICATIONS.

Dr. Owen exhibited several charts and a large number of very interesting colored drawings, all executed by himself, illustrating the geology of the Western country. These drawings represented all the known fossils characteristic of the various strata of Indiana, Ohio, Illinois, Kentucky, &c., mostly on a magnified scale. Dr. Owen entered into a detailed explanation of these drawings, and pointed out the fossils peculiar to each of the formations.

Professor Rogers followed with some general observations on the geology of the Western States, and also called attention to the remarkable character of the anticlinal axis represented in one of the charts exhibited this evening, which

illustrated in a striking manner, his views respecting the constancy of the direction of the ancient and modern forces of elevation in this region of the continent.

MEETING FOR BUSINESS.

MAY 30, 1843.

VICE PRESIDENT MORTON in the Chair.

The Report of the Corresponding Secretary was read and adopted.

The following gentlemen were then elected:

CORRESPONDENT.

James Ombrosi, Esq., U. S. Consul at Florence, Italy.

MEMBER.

Horatio S. Stephens, of Philadelphia.

STATED MEETING, JUNE 6, 1843.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Three hundred and thirty-five species of Plants from the North-Western Territory, including the Valley of the Mississippi and Missouri rivers. Presented by J. N. Nicollet, Esq.

Fire Opal, and native capillary Silver, from Mexico; pure Indigo, from Guatimala; and a Lichen, from Venezuela. Presented by Captain John Land.

DONATIONS TO LIBRARY.

Annales des Mines. Quatriéme Série. Tome 1. Liv. 3; and Tome 2. Liv. 4, de 1842. In exchange.

Observationes Astronomicæ in Specula regia Monachiensi institutæ et regio jussu publicis impensis editæ a J. Lamont. Vol. vii. et vol. x. seu novæ seriei, vols. v. et xi. Monachii, 1842.

Die Kartoffel-Epidemie der letzen jahre oder die Stodfäule und Räude der Kartofflen. Von Dr. Von Martius. 4to. Munchen, 1842. From the Author.

The number of the Army and Navy Chronicle containing a list of Officers and Members of the National Institute. for 1843.

A number of the Middletown (Connecticut) Sentinel containing a communication from Dr. J. Barratt, Correspondent of the Academy, on a plan for restoring Salmon to the Connecticut river. From Br. Barratt.

Five engraved copper plates of Physa and one plate of Planorbis, of Haldeman's Limniades. From the Author.

WRITTEN COMMUNICATIONS.

Letters were read from Wm. G. Lettsom, Esq., dated Washington, June 2, 1843, and from J. G. Norwood, M. D., dated Madison, Indiana, May 23, 1843, severally acknowledging the receipt of their notices of election as Correspondents of the Academy.

Also a communication from the Perpetual Secretary of the Imperial Academy of Sciences of Russia, dated St. Petersburg, 16th March, 1843, in acknowledgment of the receipt of the Proceedings and other Publications of the Academy.

STATED MEETING, JUNE 20, 1843.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Very large and fine specimen of Conus papilionaceus, from Liberia. Presented by Mr. Cassin.

Specimen of Scutella pentaphora, from Great Egg Harbor; twenty-five species of Insects, (family Libellulidæ,) from the vicinity of Philadelphia; and a specimen of Elater nocticulus, from the West Indies. From Mr. Charles C. Ashmead.

DONATIONS TO LIBRARY.

Reports of the Council and Auditors of the Zoological Society of London, with portions of the Proceedings of the same for 1842. From the Society.

Address delivered at the anniversary meeting of the Geological Society of London, on 17th February, 1843, prefaced by the announcement of the award of two Wollaston medals, and the Donation Fund for the same year. By Roderick Impey Murchison, F. R. S., &c. London, 1843. From the Author.

On the distribution and classification of the older or palæozic deposits of the North of Germany and Belgium, and on their comparison with formations of the same age in the British Isles. By the Rev. Adam Sedgewick, F. R. S., F. G. S., &c., and Roderick Impey Murchison, F. R. S., F. G. S., &c. 4to. Accompanied by a 4to. volume of engravings illustrative of the text. London, 1842. From the Authors.

Manuscript Lectures on various subjects of Natural History and Natural Philosophy. By Redmond Conyngham, of Lancaster county, Pennsylvania. From the Author.

WRITTEN COMMUNICATIONS.

A letter was read from the Secretary of the Zoological Society of London, acknowledging the receipt of the Proceedings of the Academy.

VERBAL COMMUNICATIONS.

Dr. Morton, (upon resigning the chair to Dr. Goddard,) communicated some interesting information respecting the Cicada septemdecim, or seventeen year locust, which, during a recent journey from Rahway to Haddonfield, in the State of New Jersey, he had observed in very great numbers. They made their appearance there three or four weeks since, and were chiefly to be found in the tract of country lying between the two places mentioned, not exceeding fifty miles in extent. In one apple orchard the trees were literally loaded with them; some trees Dr. M. supposed to contain not less than two thousand. The foliage or other vegetation, so far as his observatien extended, had as yet sustained no perceptible injury from them; and naturalists were still undecided with re-

gard to the kind or source of sustenance preferred by the insect during the time it remains above the surface.

Dr. Morton referred to the minutes of a former year, 1834, when this insect had appeared in the city and its vicinity, for a record of interesting information on the subject, which, at his request, was read by the Secretary.

[The following extracts from the minutes alluded to have not been published at any previous period, and are presented at this time, chiefly with the view of calling the attention of members and others to the subject, and of inducing farther investigation.

At the meeting of June 3d, 1834, Dr. Harlan stated that on the 25th of May last he had observed the Cicada septemdecim in such large numbers as to blacken a field of wheat in the vicinity of the city: they were also very numerous in some of the public squares. It was his belief that the insect increased somewhat in size while it remained; and also, that nothing was known respecting its food. Upon dissection, mere rudiments of the organs of digestion were found.

Mr. Rogers, on the contrary, stated that in 1817, the trees in the neighborhood of Baltimore had been stripped of their leaves by this insect. He also expressed some doubt as to their common origin, from the fact of their periodical return not being necessarily in the same year in different parts of the country, and that this was probably owing to geological causes.

Dr. Keagy had seen them in 1815 in the Valley of the Mississippi; in 1817 near Baltimore, and in 1832 in Westmoreland county, Pennsylvania; Dr. R. Coates in 1818, in Burlington county, New Jersey; Mr. Gibbons in 1825, near Moorestown, New Jersey, and in 1827 in the eastern part of Virginia; Mr. Johnson in 1831, near Rochester, New York; and Dr. Morton in 1817, in Westchester county, New York.

Dr. Coates had seen a tree in Germantown nearly destroyed, in 1817, by the deposition of the ova of the insect.

Dr. Pickering stated that this Cicada had not yet been met with in the eastern part of New England, but that a rare species of Cicada had been found nearly resembling the C. septemdecim, and which might be easily confounded with it; the latter differed, however, in the abdomen being all black: in the former, the rings of

the abdomen have each a red border; they were usually found in rocky soil.

At the subsequent meeting, Mr. Gibbons read an extract of a letter from his brother on the subject of the Cicada septemdecim, in which the writer stated that he had seen them feeding on the sweet gum, by pushing the proboscis into the bark; when this organ was withdrawn a drop of fluid appeared at the aperture, which served for food to some ants.

Dr. Mütter exhibited a dissection of the singing apparatus of the Cicada septemdecim, consisting of the diaphragm and an air cell and sounding board on each side, and a pair of muscles. The whole is distinct from the abdominal cavity. The proboscis was hollow, and intestines convoluted, without perceptible œsophagus or stomach.

Mr. Lukens mentioned that with Mr. T. R. Peale he had seen the Cicada septemdecim feeding, by pushing the proboscis into the bark of trees, particularly young beech trees.

At the meeting on the 1st July, Dr. McEuen (then Recording Secretary) stated that the C. septemdecim had disappeared from some places in the vicinity of the city since the occurrence of a heavy rain; he also exhibited the young branches of trees in which the ova of the insect had been deposited in punctures in longitudinal lines, many in one perforation. The young branches had been thereby for the most part destroyed.

Dr. Ruschenberger, at the meeting of July 8th, observed that in travelling from Baltimore to Frederick, Maryland, he had found the C. septemdecim abundant at the two places mentioned, whilst none were seen in Montgomery county, between Baltimore and Washington.]

After the above extracts had been read, Prof. Rogers made some remarks on the subject, chiefly confirmatory of the opinion expressed by him in 1834, of the periodical return of the insect being influenced by geological causes.

Dr. Goddard referred to the well known fact of the C. septemdecim being occasionally found in a living state at a great distance below the surface. When so discovered, its head is usually downward. According to the published statements of a recent observer, Mr. Ehrenberg, of Berlin, minute infusoria may be found at a great

depth in the earth, and authorizing the conjecture that Dr. G. offered, that these infusoria afforded sustenance to the insect during its long absence. He expressed his belief that no satisfactory reason had as yet been given for its reappearance at regular periods.

As another fact, not probably known to the members generally, he mentioned that the yolk of eggs brought from the district of New Jersey at present visited by the insect, had lost, in a great measure, their yellow color. This had been observed in former years, and was supposed by the farmers to be caused by the fowls feeding on the insect.

Mr. Gliddon stated that in Lycoming county, in this State, whence he had recently returned, the insect had been very numerous, but at the time of his visit had nearly disappeared. The stomachs of some trout which he had caught there were found to be gorged with it.

Mr. Cassin had been informed that the C. septemdecim was now very abundant in other counties of the State, particularly near Mauch Chunk. He also stated that the irregularity in the time of the appearance of the insect had been supposed to be owing to the overlapping of adjoining districts; as an example of which Loudon county, Virginia, was mentioned, where it appears at intervals of eight and nine years alternately. Although, as regards this locality, and perhaps some others, this hypothesis may be correct, it will not apply to all cases. In 1834, the C. septemdecim appeared in the neighborhood of Philadelphia and in the adjoining counties, and again in small quantities in Chester county, in 1836.

Mr. Cassin expressed the opinion that there are two varieties of the C. septemdecin, the larger and smaller, both of which appeared in this vicinity in 1834; they differ in size, and also in their note. The larger is the one commonly known as the seventeen year locust.

Dr. Goddard then called the attention of the members to a plan which he had recently adopted for removing a disease, common and very fatal to newly fledged chicks, and familiarly known as "the gapes," and which he considered of importance to be known by agriculturalists.

Upon opening the trachea of a chick laboring under the disease, he discovered there a parasitic worm, which obstructed respiration,

and occasioned inflammation of the part. By injecting into the trachea a small quantity of a mixture of equal parts of spirit of turpentine and olive oil, he succeeded in destroying the worm, and removing all the symptoms, and in every instance saving the life of the chick.

MEETING FOR BUSINESS.

JUNE 27, 1843.

VICE PRESIDENT MORTON in the Chair.

Several Reports having been received, and private business transacted, the Society proceeded to ballot for Members and Correspondents. The following gentlemen were elected:

MEMBERS.

Charles R. King, M. D., of Philadelphia.
Josiah Curtis, M. D., of Philadelphia.

CORRESPONDENTS.

Professor Joseph Henry, of Princeton College, New Jersey.
John L. Stephens, Esq., of New York.
Benjamin M. Norman, Esq., of New Orleans.
Isaac G. Strain, Esq., U. S. Navy.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. I. JULY AND AUGUST, 1843. Nos. 28, 29.

STATED MEETING, JULY 11, 1843.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Specimen of the fruit of Citrus ———, (grape fruit,) from the West Indies. From Dr. Carson.

Mounted specimen of Arctomys Richardsonii, Sab., from Illinois; and fifty-four specimens of Coleopterous insects, from China. From Dr. William Blanding.

Specimen of Scarabæus centaurus, from Africa. From Mr. Cassin.

Fossil genus Conotubularia, from a boulder found at Rahway, New Jersey. From Mr. Benjamin V. Marsh, through Dr. Morton.

A portion of the trunk of the Carica papaya, from St. Croix. From P. A. Browne, Esq.

DONATIONS TO LIBRARY.

Amaryllidaceæ: preceded by an attempt to arrange the Monocotyledonous orders, and followed by a treatise on Cross-

bred Vegetables, and a supplement. By the Hon. and Rev. William Herbert. London: 1837. From the Author.

Report on the Geology of the State of Connecticut. By James G. Percival. New Haven, 1842. From the Author.

A Monograph of the Fresh-water Univalve Shells of the United States. By S. S. Haldeman. No. 6. January, 1843. From the Author.

An Address delivered at Laurel Hill Cemetery, on the completion of a Monument erected to the memory of Thomas Godfrey, June 1, 1843. By G. Emerson, M. D. From the Author.

WRITTEN COMMUNICATIONS.

Mr. Cassin read a paper intended for publication, entitled "Descriptions of two species, supposed to be new, of the genus Tyrannula, found in Cumberland county, Pennsylvania," by William M. and Spencer F. Baird, of Carlisle; which on motion was referred to a Committee consisting of Messrs. Cassin, Phillips, and Peale.

A communication from the American Philosophical Society, dated May 19, 1843, returning acknowledgments for Nos. 24 and 25 of the Proceedings of the Academy.

The Chairman read a note from Dr. J. C. Spencer, of Moorestown, N. J., dated July 2d, containing an extract of a letter from Mr. Edward Harris, who accompanies Mr. Audubon to the Rocky Mountains, dated Fort Pierre, thirty-six days from St. Louis, June 1st, stating that the expedition expected to reach the Yellow Stone River in ten or twelve days, and that they had already procured some new birds, and many rare ones, and also some rare quadrupeds.

A communication from Peter A. Browne, Esq., containing much interesting information respecting the Carica papaya, or Papaw of the West Indies, was read and ordered to be placed in the library of the Academy.

MEETING FOR BUSINESS, JULY 25, 1843.

VICE PRESIDENT MORTON in the Chair.

The Report of the Corresponding Secretary was read and adopted.

The Committee to whom was referred the following paper, reported in favor of its publication in the Proceedings of the Academy.

Descriptions of two Species, supposed to be new, of the Genus Tyrannula Swainson, found in Cumberland County, Pennsylvania. By William M. and Spencer F. Baird, of Carlisle, Pa.

For the first of the species hereafter described, we propose the name of Tyrannula flaviventris, the bright yellow colour of the lower parts constituting a striking feature. The other we have named Tyrannula minima, it being the least of all our North American Tyrannulæ.

The similarity in colour and size between a number of our small tyrant fly-catchers being very great, we have deemed it best to send with the specimens of the two described, skins of T. acadica, and T. Traillii, species which most nearly resemble them. By a comparison of the four, the distinctive features of each will at once be perceived.

Tyrannula flaviventris, (nob.)

Specific Characters. Above deep greenish olive, beneath bright sulphur yellow, sides and fore part of breast olivaceous. Tail emarginate. Third and fourth primaries longest. Bill brownish yellow beneath.

Description of a Male.

Form, &c. Body rather stout. Bill broad and the sides convex. Tarsus longer than the middle toe. Wings rounded; third primary longest, fourth slightly shorter, second one line shorter than third, and two lines longer than fifth, first shorter than fifth, but longer than sixth. Tail emarginate and slightly rounded.

Colour. Bill above dark blackish brown, beneath light yellowish brown. Feet brownish black. Plumage of the upper parts deep greenish olive, crown of the head rather darker, the feathers having their centres dark brown. A narrow ring round the eye pale yellow. Lower tail coverts, abdomen, and linings of the wings, bright sulphur yellow, deepest on the abdomen. Sides of the body, forepart of the breast, and

sides of the neck, olive, lighter than the back, and inclining to yellowish on the throat. Primaries and tail feathers dark brown, the former bordered with grayish, and the latter with olive like the back. The lower row of lesser wing coverts and the secondary coverts darker, tipped with pale yellow, that colour forming two bands across the wing. Secondaries darker than the primaries, and edged with pale yellow.

Length 5 inches 4 lines; extent 8 inches 8 lines; folded wing 2 inches 9 lines.

The sexes are similar in colour, but the *female* is generally rather smaller.

Observations. This strongly marked species will at once be distinguished from every other by the deep yellow of its under parts. It resembles T. acadica of Gmelin (querula of Wilson) somewhat in form, but acadica by comparison will be found to be a larger bird, lighter olive above, and very pale yellow beneath. The tail of acadica is even or slightly rounded, in this species emarginate.

We have no specimen of T. pusilla, of Swainson, but upon comparison with the description in Swainson and Richardson's Zoology of North America, (so favourably known for accuracy,) it appears to differ in the colour of the upper parts, pusilla being "intermediate between hair brown and oil green;" our species is of a decided olive green; the front of pusilla is "hoary;" in our species dark brownish olive; the bands on the wing grayish white; in our species pale yellow; "throat and breast" of T. pusilla "pale ash gray;" in this species the throat is yellow, and the breast olive tinged with yellow.

This species was first observed in the spring of 1840, near Carlisle, Pennsylvania. During every succeeding spring since, it has been seen in greater or less numbers, and several specimens procured each year. Its habits are much like those of the other species of this genus; it frequents low thickets near small streams, is seldom found in large woods like T. acadica, or T. virens, and is a very unsuspicious bird, allowing persons to approach within a short distance. It probably goes further north than Pennsylvania to breed, having never been observed after the latter part of May or beginning of June.

Tyrannula minima, (nob.)

Specific Characters. Above dark grayish olive, breast light ash gray, abdomen and lower tail coverts yellowish white. Tail emarginate. Second and third primaries longest, first longer than sixth. Bill horn colour beneath.

Description of a Male.

Form, &c. Body rather slender. Bill smaller than the other species of the genus. Tarsus slightly longer than the middle toe. Second primary longest, third nearly equal, and rather longer than fourth, fifth

one line shorter than fourth, first intermediate between fifth and sixth. Tail emarginate and slightly rounded.

Colour. Bill dark blackish brown above, pale horn colour beneath. Feet black. Plumage of the upper parts dark grayish olive, crown somewhat darker, rump lighter and inclining to grayish. A narrow ring round the eye grayish white. Fore part of breast, sides, and sides of the neck light ash gray, middle of throat white, rest of the lower parts very pale yellow or yellowish white. Primaries and tail feathers wood brown, the former narrowly, and the latter broadly edged with olive. Lower row of lesser wing coverts and the secondary coverts darker, tipped with dirty white, that colour forming two bands across the wings. Secondaries also dark, like the greater wing coverts, and broadly edged with yellowish white.

Length 5 inches, 2 lines. Extent 8 inches, 3 lines. Folded wing 2¼ inches.

No perceptible difference as to colour or size between the sexes.

Observations. This species will be recognized by its size, its slender form making it the smallest of our North American Tyrannulæ. In colour it most resembles T. Traillii, of Aud., but it is a much smaller bird, being nearly three-fourths of an inch shorter. T. Traillii has the breast and sides of the neck olivaceous; in this species light ash gray; the tail also of T. Traillii is even.

It differs from T. pusilla (comparing with the description of Swainson and Richardson as before) in having the wings more pointed, the second and third primaries being longest, and the first longer than the sixth; while in pusilla the third and fourth are longest, and the first shorter than the sixth. The upper tail coverts of pusilla are uniform in colour with the back; in our species lighter: pusilla has the front "hoary;" in this species dark. The lower parts of pusilla are pale sulphur yellow, "approaching to siskin-green;" in our species yellowish white: the under mandible of pusilla is yellowish brown; of this species horn colour. From the figure in the Fauna Boreali-Americana, pusilla appears to be a stouter bird, much deeper in colour beneath and having a broader bill. Its smaller size, and darker colour above, will distinguish it from T. acadica (being two-thirds of an inch shorter,) which species has also longer and more pointed wings, a much larger bill which is light brown beneath, and an even tail.

This species was first observed and procured in May, 1839, near Carlisle, Pennsylvania. Since then numbers have been observed and shot on every succeeding spring. Like the preceding, (T. flaviventris,) this bird does not frequent deep forests, but is found among the scattering trees which border our streams. It is rather shyer than T. flaviventris, and does not, like that species, seek dense thickets. It also, most pro-

bably, goes further north to breed, as after the last of May it is no longer to be seen. It visits us from the south in the latter part of April, generally making its appearance about a week before T. flaviventris.

NEW BUSINESS.

Mr. George R. Gliddon informed the Academy that he had recently received a letter from his father, John Gliddon, Esq. U. S. Consul in Egypt, dated Cairo, 18th June, 1843, expressing regret that the Egyptian Society had been unavoidably obliged to delay the answers to the geological queries addressed to them by a Committee of the Academy. These queries had been submitted to a special committee of scientific members, by whom it was discovered that they had been met (though under different arrangement) in a dissertation which Dr. Figari (a distinguished Italian naturalist, &c. and member of the Society) is preparing to be read and presented at the next general meeting of the Society, expected to take place on the 1st of July, and which would be published forthwith. Copies would be sent to the Academy with an official communication. Mr. Gliddon also stated that a copy of M. Linant's (chief engineer in the Pasha's service) Memoir on Lake Mæris, just published by the Egyptian Society, had been sent to the Academy, and would be presented as soon as received.

ELECTION.

The Hon. and Rev. William Herbert, of Manchester, England, was elected a Correspondent of the Academy.

STATED MEETING, August 1, 1843.

Mr. Pearsall in the Chair.

DONATIONS TO MUSEUM.

Skins of the following species of Birds were presented by Isaac G. Strain, Esq., U. S. N.

Cyanurus Stelleri, Gm., Sw.
Agelaius tricolor, Aud.
Philedon fasciculatus, Gm., Cuv.
Melithreptus vestiarius, Lath., Viel.
Mormon cirrhata, Linn.

A collection of Plants from the Island of Barbadoes. From Mrs. William S. Biddle, of Philadelphia, through Dr. Elwyn.

DONATIONS TO LIBRARY.

Annual Reports of the Leeds Philosophical Society, from 1824 to 1840, excepting for 1828 and 1829, with a copy of the Laws, &c. of the Society. From Mr. Henry Denny.

American Journal of Science and Arts. Vol. xliv. No. 1. For July, 1843. From the Editors.

WRITTEN COMMUNICATIONS.

A letter was read from M. Arago, dated Paris, Feb. 6, 1843, announcing the reception by the Institute of France, of the Proceedings of the Academy for August, September, and December, 1842.

Also, a letter from Mr. Henry Denny, dated Leeds, June 16, 1843, acknowledging the reception of his notice of election as Correspondent of the Academy. Also, stating that he was engaged in preparing a Monograph of the foreign species of the Class Anoplura, under the auspices of the British Association for the advancement of Science, and requesting

aid and information on the subject from the Academy. He likewise announced that he had transmitted to the Academy a set, nearly complete, of the Annual Reports of the Leeds Philosophical Society.

STATED MEETING, AUGUST 8, 1843.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

Plantes Nouvelles ou rares d'Amerique. Par Stephano Moricand. Livs. 1 to 7. 4to. Geneva. From the Author, in exchange for duplicate copies of American works on subjects of Natural History.

Reliquiæ Baldwinianæ: Selections from the Correspondence of William Baldwin, M. D. Compiled by William Darlington, M. D. Philadelphia, 1843. From Dr. Darlington.

WRITTEN COMMUNICATIONS.

A letter was read from the Secretary of the Royal Academy of Sciences of Turin, dated June 9, 1843, acknowledging the receipt of the Proceedings and other publications of the Academy.

Mr. George R. Gliddon read a short abstract of Dr. Lepsius's late discoveries in Egyptian Archæology, especially that of the labyrinth in the Fayoom, and those at the Memphite Pyramids.

BUSINESS BY SPECIAL RESOLUTION.

On motion of Mr. Phillips, the Publication Committee was authorized to transmit to M. Moricand, of Geneva, a complete copy of the Journal of the Academy, with the view to an exchange for the Journal of the Geneva Society.

STATED MEETING, AUGUST 22, 1843.

MR. PHILLIPS in the Chair.

DONATIONS TO MUSEUM.

Skins of Tyrannula Traillii, Aud., T. acadica, Gm., T. flaviventris, Baird, and T. minima, do.; intended to accompany the paper from Messrs. Baird, of Carlisle, read before the Academy at the meeting of July 11th last, describing the two last named species.

Also, Skins of sixty-three other species of North American Birds. All presented by Messrs. Baird, of Carlisle, Pennsylvania.

Also, a skeleton of unusual size, nearly entire, of Ursus Americanus, found in a cave near Carlisle. From the same.

A collection of upwards of one hundred specimens of insects, chiefly Coleopterous, from the vicinity of Philadelphia. From Mr. Kilvington and Dr. Watson.

Two very fine specimens of crystallized Selenite from the Patuxent and St. Mary Rivers, Maryland. From Mr. W. S. Vaux.

Two living specimens of Crax alector, from Tampico. From Miss Percival, of Philadelphia,

A living specimen of Tetrao cupido, (female,) from Missouri. From Mr. James Dundas, of Philadelphia.

A collection in spirits of South American insects, larvæ, reptilia, &c. From Mr. J. G. Strain, U. S. N.

DONATIONS TO LIBRARY.

Descriptions of twelve new species of Unionæ, by Isaac Lea. Read before the American Philosophical Society, August 18th, 1843. From Mr. Lea.

MEETING FOR BUSINESS, AUGUST 29, 1843.

VICE PRESIDENT MORTON in the Chair.

After the usual preparatory business of the Academy had been concluded, an election was held for Members and Correspondents, with the following result:

MEMBER.

Mr. William Gambell, of Philadelphia.

CORRESPONDENTS.

Dr. Lepsius, of Berlin.
James G. Percival, Esq., of New Haven, Conn.
Rev. Adam Sedgwick, F. R. S., of London.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. I. SEPT. AND OCT., 1843. Nos. 30, 31.

STATED MEETING, Sept. 5, 1843.

Mr. LUKENS in the Chair.

DONATIONS TO LIBRARY.

An Essay on Calcareous Manures, third edition. By Edmund Ruffin. 8vo. Petersburg, Va. 1842. From the Author.

Proceedings of the Zoological Society of London. Part 10th. 1842. From the Society.

Annales des Mines. Quatriéme Série. Tome 2d, 6e Liv. de 1842. In Exchange.

WRITTEN COMMUNICATIONS.

Two communications were read from the Zoological Society of London, dated respectively Dec. 20, 1842, and Jan. 23, 1843, acknowledging the reception of Nos. 17 to 19 of the Proceedings, and of Part 2d, Vol. 8th, of the Journal of the Academy.

STATED MEETING, SEPTEMBER 12, 1843.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Fine specimen of Alcyonium. From Miss Anna Massey of Philadelphia.

Three living specimens of Crotalus durissus, and one of Coluber constrictor, from Pinegrove, Schuylkill county, Pennsylvania. From Mr. W. S. Vaux.

Fossil genera of Cardita, Arca, Ostrea and Conus; casts of Ammonites, Pinna and Venus; Vertebræ of Zeuglodon; various geological specimens, marls, clays, &c., from Louisiana; and specimens of the following species of Unio, viz: U. apiculatus, U. Heros, U. glebulus, U. Hydianus, U. purpuratus, U. trapezoides, U. teres, U. parvus, U. plicatus, U. fragilis, U. tuberculatus, U. bullatus; also Anadonta grandis. From Prof. Forchey of Natchez, Miss.

WRITTEN COMMUNICATIONS.

Mr. Phillips read a paper intended for publication, entitled "A Catalogue of the Carabideous Coleoptera of south-eastern Pennsylvania; and descriptions of North American species of Coleoptera presumed to be undescribed; by S. S. Haldeman." The paper embraced forty-nine species, and was referred to the following committee: Mr. Peale, Mr. Markland, and Dr. McMurtrie.

A letter was read from the Secretary of the Botanical Society of London, dated 7th July, 1843, returning thanks for the donation of a portion of the Proceedings of the Academy.

The Chairman read a letter from Dr. Goheen, dated Columbia, 9th September, announcing that he had forwarded for the Academy a donation of valuable and interesting specimens in Natural History, collected by himself in Liberia.

STATED MEETING, SEPTEMBER 19, 1843.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

The following constitute the donation of Dr. Goheen, referred to in his letter read at the last meeting:

Articulated skeleton, in fine order, of an adult male Chimpanzee, (Troglodytes niger,) 44¼ inches in height; an imperfect skeleton of a young African Elephant; skull of Hippopotamus Senegalensis, from the Gambia; stuffed specimen of a Monitor, nearly five feet in length; horn of an African Buffalo; tail of an African Elephant; Porcupine quills; ear of African Millet, or Guinea Corn, (Sorghum vulgare;) African coffee in the capsule; Frankincense; numerous specimens of African woods; Syenite; Granite; Iron Ore; Copper Ore from Sierra Leone; and other Mineralogical specimens from Western Africa.

Head of a Zygæna from Squam Beach, New Jersey. From Mr. Josiah L. Coates of Philadelphia.

DONATIONS TO LIBRARY.

Two hundred and forty plates with the text of Guérin's "Magasin de Zoologie," (Insectæ.) In exchange.

Bulletin de la Société Imperiale des Naturalistes de Moscou. No. 3 Annee 1842. From the Society.

Reports of the first, second, and third meetings of the Association of American Geologists and Naturalists. 8vo. Boston. 1843. From Dr. Morton.

WRITTEN COMMUNICATIONS.

A letter was read from Dr. Renard, Secretary of the Imperial Society of Naturalists of Moscow, dated Sept. 12, 1842,

accompanying the above donation of the Bulletin of the Society.

Mr. Conrad read a paper, designed for publication, entitled "Descriptions of a new genus and of twenty-nine new Miocene and one Eocene Fossil Shells of the United States," which was referred to a committee consisting of Mr. Phillips, Mr. Poulson, and Dr. Morton.

STATED MEETING, October 3, 1843.

Vice President Wetherill in the Chair.

DONATIONS TO LIBRARY.

Transactions of the Imperial Mineralogical Society of St. Petersburg. 1831. From the Society.

Bulletin de la Société Imperiale des Naturalistes de Moscou. Nos. 1 and 2. 1838. From the Society.

Memoires della Reale Accademia delle Scienze di Torino. Vols. 2, 3, and 4. 2d Series. 4to. Torino, 1840, '41, and '42. From the Academy.

Fisica de' corpi ponderabili ossia Trattato della constituzione generale de' corpi. Del cavaliere Amedeo Avogardo. Vols. 3 and 4. Turin, 1840 and 1841. From the Author.

Catalogus Senatus Academici et omnium alicujus gradus laurea exornatorum in Collegii Dartmuthensi Hanoveræ in Republica Neo-Hautoniensi. 1843. From the Northern Academy of Arts and Sciences.

A Review of Mr. Lyell's Elements of Geology, with observations on the progress of the Huttonian theory of the Earth. From the Edinburgh Review, No. 140. (July, 1839.) Vol. 69. From Dr. Fitton.

Proceedings of the American Philosophical Society. No. 27 Vol. 3, May 25th to 30th, 1843. From the Society.

Ancient Egypt, &c., by George R. Gliddon, late U. S. Consul at Cairo. Revised edition. New York, April, 1843. From Dr. Morton.

WRITTEN COMMUNICATIONS.

Letters were read

From the Secretary of the Royal Academy of Sciences of Turin, dated 16th June, 1843, accompanying the above donation of the Society's Transactions.

From M. Arago, Perpetual Secretary of the Royal Academy of Sciences of France, dated Paris, 3d July, 1843, returning the thanks of the Academy for Nos. 24 and 25 of the Proceedings of the Academy of Natural Sciences.

From the Secretary of the American Philosophical Society, dated September 18, 1843, acknowledging the receipt of Nos. 26, 27, 28 and 29 of the Academy's Proceedings.

BUSINESS BY SPECIAL RESOLUTION.

By permission of the Academy, the Committee to whom was referred the following paper, made a report in favour of its publication.

Catalogue of the Carabideous Coleoptera of South-Eastern Pennsylvania.

By S. S. Haldeman.

Megacephala virginica?
Cicindèla purpurea, Oliv.
splendida, Hentz.
sexguttata, Fabr.
hirticollis, Say.
repanda, Dejean.
vulgaris, Say.
punctulata, O.
micans, F.
unipunctata, F.
patruela, D.
marginipennis, D.
Casnonia pensylvanica, L.
Galerita americana, L.
Cymindis americana, D.
pilosa, Say.
*neglecta.
pustulata, D.
lucidula, D.
platicollis, S.
limbata, D.
laticollis, S.
Calleida smaragdina, D.
viridipennis, S.

Dromius piceus, D.
*apicalis.
*gemmatus.
Plochionus Bonfilsii, D.
Lebia grandis, Hentz.
atriventris, S.
4-vittata, F.
viridipennis, D.
pulchella, D.
ornata, S.
viridis, S.
scapularis, D.
pumila, D.
*brunnea.
Coptodera ærata, D.
Helluo laticornis, D.
Brachinus alternans, D.
fumans, L.
conformis, D.
perplexus, D.
Scarites subterraneus, F.
Pasimachus depressus, F.
Clivina bipustulata, F.
morio, D.
4-maculata, Mels. cat.
*acuducta.
*amphibia.
viridis, S.
Dyschirius globulosa, S.
sphæricollis, S.
gibbus, F.
hæmorrhoidalis, D.
pallipennis, S.
Cychrus viduus, S.
Sphæroderus stenostomus, Kin.
Scaphinotus elevatus, F.
Carabus serratus, S.
limbatus, S.
vinctus, Weber.
ligatus, Germar.
sylvosus, S.
Calosoma scrutator, F.
calidum, E.
externum, S.
Nebria pallipes, S.
Omophron americanum, D.
Elaphrus ruscarius, S.
intermedius, Kirby.
Nothiophilus semistriatus, S.
porrectus, S.
Panagæus fasciatus, S.
Chlænius æstivus, S.
emarginatus, S.
nemoralis, S.
vicinus, D.
prasinus, D.
lithophilus, S.
pusillus, S.
tomentosus, S.
niger, Randall, Lec.
Rembus impressicollis, D.
Dicælus purpuratus, Bon.
violaceus, Bon.
dilatatus, S.
furvus, D.
elongatus, Bon.
simplex, D.
politus, D.
Badister *notatus.
Calathus gregarius, S.
Anchomenus extensicollis, S.
decorus, S.
decens, S.
sinuatus, D.
*marginalis.
*obconicus.
*depressus.
Agonum octopunctatum, F.
cupripenne, S.
nitidulum, D.
femoratum, D.
melanarium, D.
excavatum, D.
punctiforme, S.
albicans, D.
limbatum, S.
placidum, S.
*ferreum.

Agonum *elongatulum.
*maurum.
Olisthopus parmatus, S.
cinctus, S.
Pœcilus chalcites, S.
lucublanda, S.
fraterna, S.
Argutor erythropus, D.
erratica, D.
Omaseus polita, H.
stygica, S.
muta, S.
*rugicollis.
Steropus morio, D.
Platysma adoxa, S.
muta.
oblongo-notata, S.
Myas coracinus, S.
Percosia obesa, S.
Amara impunctícollis, S.
basillaris, S.
angustata, S.
musculis, S.
*anthracina.
*indistincta.
*rubrica.
*splendida.
Bradytus exavata, D.
confinis, D.
Daptus increassatus, D.
Cratacanthus pensylvanicus, D.
Agonoderus pallipes, F.
infuscatus, D.
Gynandropus hylacis, S.
Pangus caliginosus, F.
Selenophorus Beauvoisii, D.
gagatinus, D.
ellipticus, D.
*parallelus.
*maurus.
Anisodactylus nigrita, D.
agricolus, S.
carbonarius, S.
baltimorensis, S.
Anisodactylus rusticus, S.
tristis, D.
cœnus, S.
Ophonus *sericipennis.
*opacipennis.
*mutabilis.
Harpalus interstitialis, S.
iricolor, S.
vulpeculus, S.
bicolor, F.
faunus, S.
badius, D.
erraticus, S.
terminatus, S.
nigerrimus, D.
*testaceus.
*comis.
*melanopus.
autumnalis, S.
*paradoxus.
Stenolophus carbonarius, D.
fuliginosus, D.
ochropezus, S.
fuscatus, D.
*badipennis.
Acupalpus cinctus, S.
elongatulus, D.
conjunctus, S.
partiarius, S.
consimilis, D.
humilis, D.
*rotundicollis.
*lugubris.
Tetragonoderus Lecontei, D.
Bembidium (Latr.) læve, S.
inornatum, S.
incurvum, S.
flavicaudum, S.
Tachyta picipes, Kirby,
Notaphus patruele, D.
dorsale, S.
honestum, S.
*posticum.
Bembidium (Megerle.)

Bembidium inæquale, S.
chalceum, D.
Leja nigrum, S.
decipiens, D.
*semistriatum.
Peryphus contractum, S.
Periphus furvum, Mels. cat.
tetracolum, S.
coxendix? S.
*planum.
Lopha oppositum, S.

Descriptions of North American species of Coleoptera, presumed to be undescribed.

By S. S. HALDEMAN.

From the difficulty attendant upon the study of insects in the United States, arising from the absence of standard collections, and the impossibility of knowing what has been done in Europe, the characters here given should, perhaps, be regarded as indicating species unknown to the author, rather than as absolutely new to science.

CYMINDIS *neglecta*. Head and prothorax black, thinly marked with rufous pile; head punctured; mouth, antennæ, and feet rufous: prothorax lengthened, and much contracted behind, scabrous with numerous deep punctures, mesial line and lateral submargin depressed: elytra reddish-brown, crenate-striate, interstices narrow. 8 millim. long. General appearance of C. pilosa, Say.

DROMIUS *apicalis*. Head black; prothorax reddish-brown, with a testaceous margin; elytra brown, with the tip, and a large irregular spot near the base, pale testaceous: body beneath, legs, antennæ, and palpi of the latter color. Not quite 4 millim. long.

DROMIUS *geminatus*. Brown, head black; antennæ, a large oval spot near the base of the elytra, and a small circular one at the inner extremity, testaceous. 4 mill. long.

PLOCHIONUS *timidus*. Dull reddish-brown above; antennæ, legs, lower surface and lateral margins of the prothorax and elytra, testaceous; elytra wide, deeply striate, interstices convex. 8 mill. long. *Var.* Base of the elytra, and a large spot upon the suture, behind the middle, obscure. *Hab.* Alabama. P. timidus. Hentz MS.

LEBIA *brunnea*. Fuscous, head and pronotum blackish: thorax beneath, margin of the pronotum, palpi, 3 basal articulations on the antennæ, a spot anterior to the middle and equidistant from the suture and limb, and a smaller obsolete one at the tip of the elyra, pale testaceous. 4½ mill. long.

COPTODERA *fasciata*. Head and prothorax shining black, with a tinge of greenish: beneath very dark brown: tarsi and extremity of antennæ pale brown: antennæ, legs, and elytra, pale ochraceous; elytra striate, mottled with brown about the middle, and with a large spot on the inner base and tip. 4½ mill. long. Dromius? Germari, Hentz MS. Cab. Bost. Soc., No. 1480. C. fasciata. Cab. Le Conte.

PASIMACHUS *punctulatus*. Black, smooth, and shining, marginal groove of the elytra purple: a diagonal impressed rugose furrow from the ordinary longitudinal impressions to the outer angle of the head: elytra with longitudinal rows of slightly impressed punctures: male with a rufous brush upon the pos-

terior tibiæ. 32 mill. long. Like P. depressus, but distinguished by the elytral punctures, and rugose mandibulæ. Fig. 6, pl. 20, of the Atlas to the 2d ed. Régne Animal, appears to represent this species. *Hab.* Alabama. P. punctulatus, Hentz MS.

Clivina *aenducta*. Reddish-brown; elytra fuscous, finely striate; striæ very minutely punctured from the base towards the middle, whence they are impunctured to the tip; 4 inconspicuous punctures upon the 3d interstitial line; margin with a row of deep approximate punctures; mesial line of the pronotum profound. 6 mill. long. *Hab.* Pa. and Ala. C. aenducta, Harris MS, *fide* Melsheimer.

Clivina *amphibia*. Rufo-testaceous; head with 2 longitudinal approximate elevated lines, and 2 obsolete ones exterior to them; pronotum with 3 obvious furrows, the lateral ones slightly converging, and abbreviated anteriorly: elytra with fine, minutely, and obsoletely crenate striæ. 3½ mill. long. C. amphibia, Hentz MS, *fide* Melsheimer.

Badister *notatus*. Black; head and pronotum impunctured, shining, the latter with an impressed mesial line, crossed by another short one at the anterior extremity, and a large pit at the posterior angles: elytra blackish, or reddish-brown, acutely striate, striæ scarcely crenate, 2d interstice with 2 punctures; antennæ, palpi, and legs, pale testaceous. 4½ mill. long. Carabus notatus, Melsh. Cat. No. 1184, *fide* F. E. Melsheimer.

Anchomenus *depressus*. Shining black: antennæ, palpi, and tarsi, with a tinge of reddish-brown: mesial line of the pronotum impressed, with a short one crossing it anteriorly; posterior angles subacute: elytra sinuate at tip, wide, flat, with deep, finely punctured striæ, and the 3d interstice with 3 punctures. 11 mill. long. A. depressus, Harris MS, *fide* Melsheimer.

Anchomenus *marginalis*. Pitchy black, brownish piceous beneath: antennæ more than half the entire length, base piceous, glabrous, 4th and remaining articulations pilose, and, with the feet, ferruginous: palpi rufo-testaceous: impressions of the pronotum distinct, lateral margins testaceous, and strongly reflexed: elytra finely striate, striæ impunctured: interstices flat, with the 3d 3-punctured. 10 mill. long.

Anchomenus *obconicus*. Shining black, piceous beneath: antennæ light ferruginous, the 2 basal articulations, with the trophi and legs, rufo-testaceous: pronotum oblong cordate, little more than half the width of the elytra, lateral margin inconspicuous, not excurved posteriorly; mesial furrow narrow: elytra oblong-oval, a testaceous obsolete spot at tip, crenate-striate, with 3 punctures on the inner side of the 3d interstice. 6½ mill. long.

Agonum *ferreum*. Greenish black, shining; beneath pitchy black: antennæ fuscous, 3 basal joints, palpi, labrum, tibiæ, and tarsi, testaceous: femora dark chesnut: impressions of the pronotum profound; elytra black, crenate-striate to the middle, posterior half with the crenæ wanting, or obsolete: 3d interstice 3-punctured; tip obliquely truncate, scarcely sinuate. 7 mill. long.

Agonum *ocreatum*. Black, shining, head with a slight reflexion of green; antennæ and palpi testaceous: pronotum wide, lateral margins very convex; reflexed, mesial line and posterior impressions profound: elytra deeply crenate-

striate, with an obsolete terminal corneous spot; tip sinuate; base and extreme tip of the femora piceous; tibiæ and tarsi pale corneous. 7½ mill. long. *Hab.* Alleghany Mts., Hentz. A. ocreatum, Hentz MS.

AGONUM *elongatulum*. Slender, shining black, prothorax lengthened, narrowed posteriorly, with the dorsal impressions rather faint, and the lateral margin narrowly depressed: elytra dusky brown, simply striate, interstices flat, the 3d with 4 indistinct punctures; tip scarcely sinuate; antennæ with the 3 basal articulations glabrous, testaceous; remainder ferruginous, tomentose; palpi brownish: legs and epipleura yellowish testaceous. 7 mill. long.

AGONUM *maurum*. Deep shining black; pronotum rather wider than long; dorsal impressions distinct, lateral margin much depressed, a small tubercle rising from the deepest part of the depression of the posterior angles: elytra sinuate at tip, striæ acute, simple, interstices flat, the 3d with 3 faint punctures: feet, and extremity of the antennæ, pitchy black. 9 mill. long.

OMASEUS *rugicollis*. Black, beneath dark brown, or piceous: frontal impression considerably dilated, antennæ piceous, base darker, brownish pilose towards the tip: pronotum obviously transversely wrinkled, slightly contracted behind; lateral edge rather regularly arquated; mesial line distinct: posterior angles rounded: basal indentations dilated, with a somewhat prominent longitudinal swelling in the centre: elytra profoundly and obtusely striate. 17 millim. long. *Hab.* Western Penn. O. rugicollis D. Ziegler MS.

AMARA *splendida*. Short oval, glossy, dark green bronzed, or blackish cupreous, above; black bronzed beneath: lateral frontal impressions wide, 2 punctures at the inner margin of the eyes, distinct; antennæ fuscous, 2 basal articulations testaceous; palpi dark brown: pronotum, with the mesial line well impressed; a deep longitudinal indentation exterior to it, near the posterior margin, and a small one between it and the external margin: area of the posterior angles indistinctly punctured: elytra sinuate, finely and simply striate, interstices rather flat, posterior half (and sometimes the anterior fourth) of the submarginal one, crenulate on the internal edge; tarsi testaceous. 10 mill. long.

AMARA *anthracina*. Oval, cupreous black, impunctured; beneath, shining black: frontal lines slightly impressed; one or both punctures at the inner margin of the eyes, distinct: clypeal suture indistinct: antennæ fuscous, with 3 basal articulations, and part of the 4th, testaceous: labrum and palpi piceous, tips of the latter pale: pronotum with the basal impressions shallow, foveolæ single, frequently interrupted in the middle, numerous short obsolete striæ near the scutel, mesial line fine, anterior cross line obsolete: elytra finely striate, striæ impunctured, acute, tip sinuate: femora dark chesnut-piceous, tibiæ and tarsi reddish brown. 9½ mill. long.

AMARA *indistincta*. Oval, black, glossed above: frontal lines short, and slightly impressed: 2 punctures near the margin of the eyes distinct: clypeal suture indistinct; basal impressions of the prothorax small; foveolæ single and fine; mesial line fine; elytra finely striate, 5th and 6th striæ obsoletely punc-

tured, tip slightly sinuate: antennæ brownish, with the 3 basal articulations yellowish testaceous: palpi testaceous, with the middle brown: legs testaceous. 6 mill. long, 2¼ wide. Proportionally wider and more brilliant than A. angustata, Say, and differs in outline.

AMARA *rubrica*. Oval, reddish brown, glossy: frontal lines obsoletely impressed, 2 piliferous punctures near the inner margin of the eyes, distinct: clypeal suture distinct; pronotum nearly rectangular posteriorly, and with the basal indentations shallow, and sparsely punctured; foveæ single, somewhat obsolete; mesial line fine, crossed by numerous short rugæ; elytra finely punctate-striate, interstices somewhat convex, tip sinuate. 8 mill. long, 3 wide.

SELENOPHORUS *parallelus*. Lengthened oval, black, shining: antennæ, palpi, tibiæ and tarsi, rufous; femora darker, or chesnut: head glabrous: posterior impressions of the pronotum slight, and minutely rugose: elytra slightly sinuate, striate, striæ alternately obsoletely punctured, a row of about 6 punctures upon the inner edge of the 3d interstice. 8 mill. long. Larger, and narrower in comparison, than S. ellipticus, with the sides of the elytra more nearly parallel, and the abbreviated striæ near the scutel, more distinct.

SELENOPHORUS *maurus*. Lengthened, shining black: head glabrous: antennæ and palpi rufous: pronotum transversely rugulose, posterior impressions obtuse, minutely punctured, and rugose, mesial line fine: elytra slightly sinuate at tip, finely striate, interstices flattened; 2d, 5th, and 7th striæ, obviously punctured: legs dark chesnut. 8 mill. long. Wider than the preceding.

OPHONUS *mutabilis*. Shining black, or reddish brown; glabrous; feet and beneath, rufous: antennæ and palpi, yellowish rufous, head with a round obtuse indentation upon each side, between the eyes: pronotum narrowed behind, mesial line fine, transverse one distinct; posterior angles square, basal indentations small, obtuse, minutely punctured, and rugose: foveæ single, short: elytra profoundly striate, interstices convex, tip slightly sinuate. 9¼ mill. long. Var. B. Head and prothorax reddish brown; beneath and feet, testaceous.

OPHONUS *opacipennis*. Oval, glossy; chesnut brown beneath, and upon the middle and posterior thighs antennæ, palpi, margin of the labrum, intermediate and posterior tibiæ and tarsi, and anterior legs, rufous: head with a small round indentation upon each side, between the antennæ: pronotum much wider than long, transversely rugulose: with the basal impressions rugose, shallow, each with a very slight fossula; dorsal lines faint: elytra finely and simply striate, interstices flat, with a puncture upon the third one; tip slightly sinuate: surface sericeous. 9 mill. long.

HARPALUS *testaceus*. Oval, testaceous: feet and beneath paler, with a yellowish tinge; eyes black; elytra fuscous, slightly iridescent with bluish; sides of the head with a large indentation between the antennæ: pronotum with the lateral margins and area of the posterior angles depressed; basal indentations obtuse and impunctured; dorsal impressions obsolete, scutel small: elytra finely and simply striate; tip slightly sinuate. 9 mill. long.

HARPALUS *comis*. Shining black above, and upon the under surface of

head and prothorax; chesnut brown beneath; antennæ, palpi, and legs yellow-testaceous; head with a small round indentation at the inner base of the antennæ: pronotum widest before the middle, contracted behind, with the angles slightly obtuse; basal impressions shallow, somewhat rugulose; dorsal impressions distinct; lateral margin testaceous; elytra simply striate, slightly sinuate, margin rufo-piceous towards the tip; interstices rather flat, third with a faint puncture. 8 mill. long, 3 wide.

According to Dr. F. E. Melsheimer, this is the Carabus autumnalis, of Knoch, in his father's catalogue, No. 1153, but not the *autumnalis* of Say.

HARPALUS *melanopus*. Glossy black; frontal impressions distinct; antennæ fuscous; basal articulation, tarsi, and hairs of the legs, rufous: labrum piceous with a few rufous hairs; palpi pitchy-brown, tip testaceous: pronotum as wide posteriorly as the base of the elytra, and not excurved; sides slightly rounded and depressed; basal impressions large, with the area of the posterior angle densely and rugosely punctured; mesial line narrow and entire, transverse ones obsolete: elytra sinuate, simply and acutely striate: interstices convex, the third with a puncture. 13 mill. long.

HARPALUS *paradoxus*. Black, glossy: antennæ ferruginous, tomentose, two basal articulations glabrous, and with the termination of the palpi, rufous: feet brownish piceous: indentations between the antennæ large and profound, a distinct transverse impressed frontal line: base of the pronotum contracted, narrower than the base of the elytra, and much punctured, particularly in and near the large basal indentations: mesial line distinct: elytra sinuate: deeply and acutely striate; interstices slightly flattened at base, and becoming convex towards the tip. 15 mill. long. Probably an Anisodactylus with the preceding.

STENOLOPHUS *badipennis*. Black, glossy: elytra testaceous brown, finely and simply striate, interstices flat, third one with a puncture: head with a double indentation and impressed puncture upon each side near the antennæ, which are fuscous, with the tip and two basal articulations testaceous, with a black spot on the posterior side of the first one; palpi testaceous, basal half of the terminal articulation brownish: pronotum with the extreme edge testaceous, basal indentations obtuse, and sparsely punctured; dorsal impressions almost obsolete; femora very dark brown, discolored with rufous; tibia and tarsi testaceous. 7 mill. long. Carabus opacus, Mels. Cat. No. 1162, *fide* Dr. Melsheimer.

ACUPALPUS *rotundicollis*. Ovate oblong, shining; head deep black, frontal indentations small, not distinct; antennæ pale fuscous, two basal articulations, palpi and feet testaceous: prothorax rufo-testaceous, sides strongly rounded, truncated posteriorly and deeply emarginate before, with the anterior angles subacute, and posterior ones obtuse; basal indentations almost obsolete, mesial line fine and entire; elytra oblong, dark chesnut, extreme margin and epipleura rufo-testaceous; finely striate, rudimental striæ indistinct; tip obtusely rounded: venter blackish. 4 mill. long.

ACUPALPUS *lugubris*. Black; frontal impressions distinct: antennæ pale, fuscous, or ochraceous, two first articulations, palpi, and feet, testaceous: pronotum hardly as wide as the elytra, sides regularly rounded; base truncate, pos

terior angles obtuse, anterior ones subacute, basal indentations shallow, dorsal lines faint, lateral edge obsoletely testaceous; elytra finely striate, striæ not profound: tip obtusely rounded, and with the lateral margin, obtusely testaceous. 4½ mill. long.

Notaphus *posticus*. Dull brassy green above, black beneath; elytra with a tinge of brown, punctate-striate, obsoletely, near the tip, posterior half maculate with testaceous; palpi testaceous, with the ultimate joint brown: antennæ and legs testaceous, two basal articulations of the former paler. 4½ mill. long.

Leja *semistriata*. Head and prothorax black-bronzed, shining: antennæ ochraceous, two basal articulations, palpi and legs, yellow-testaceous; elytra very obscure reddish brown, punctate-striate, striæ and punctures obsolete from near the middle to the tip: beneath blackish. 4 mill. long.

Peryphus *planus*. Rather flat, black glossy, beneath reddish-brown: labrum piceous, palpi testaceous, tip fuscous; antennæ fuscous, two basal articulations testaceous: pronotum with the basal indentations obtuse, slightly scabrous, mesial line impressed with a faint round impression, each side, in the middle: elytra with a bluish reflection, punctate-striate, striæ fading on the sides and tip, sides parallel: feet obscure rufous, middle of the femora sometimes tinged with brown. 5 mill. long.

Athous *pyrrhicus*. Testaceous, densely covered with pale greyish fuscous pile, and numerous impressed punctures: pronotum large, inflated, widest in the middle, where it exceeds the base of the elytra in width, sides projecting, not rectilinear, posterior angles acute and short: elytra striate. 21 mill. long. Hab. Alabama, Hentz. Very like A. Pyrrhus, Say, but distinguished by the swelled prothorax, and shorter antennæ. A. longus, of Dejean's Catalogue, is probably one of these species.

Charactes *duplicatus*. Black, pronotum widely margined with fulvous: elytra fulvous, with the extremity, and a large oval spot near the base, and extending from the suture to near the outer margin, blackish. 13 mill. long. Dyctiopt. duplicatus, Hentz MS. resembles reticulatus, Fabr., but the anterior spot does not extend across the elytra.

Mycterus *scaber*. Black; above olivaceous tomentose, and scabrous with numerous well impressed punctures: front with an elevated ridge from the eyes to the inner base of the antennæ; antennæ (darker beyond the middle), mouth, and legs testaceous: palpi and tarsi light brown: pronotum with the mesial line obsolete in the middle, a deep puncture on the posterior edge, towards the outer margin. 7 mill. long. Hab. Carolina, on flowers in May and June.

Lytta *Germari*. Head and antennæ black, basal articulations of the latter brownish, front and protborax yellow, the latter with a small round black spot on each side of the centre: elytra yellow, 3-fasciate with dark brown, having a narrow sutural band, and a very wide one narrowed anteriorly, and entirely surrounded by yellow, a small wedge-shaped band at the inner base: meso- and metasternum black; femora and tibiæ yellow, tipped with black, tarsi blackish. 13 mill. long. Hab. Carolina in July. Cantharis Germari, Hentz MS. Boston collection, No. 443.

Hoplia *modesta*. Short and wide, ground color black, olivaceous tomentose above; greenish irised silvery beneath: legs black, with a tinge of testaceous, hair, and spines, of the latter color; thighs with a few short silvery hairs. 7 mill. long, nearly 4 wide. Allied to H. Graminicola of Europe, and probably the *modesta* of Dejean's Catalogue. Rare in Pennsylvania.

Chlænius *Lecontei*. Wide, surface minutely punctate-granulate, bright green above, black beneath; legs and three basal artic. of antennæ testaceous; tarsi and trophi piceous; head small, front and clypeus not granulate: pronotum very wide, lateral margins of the posterior half nearly parallel, impressions faint, mesial line abbreviated: elytra punctate-striate, interstices flat. 18 mill. long. C. Lecontei, Dej. Cat.

Coprobius *chalcites*. Minutely granulate, shining, reddish-brown above, beneath and legs black; head with a wide shallow depression at the upper posterior part; posterior half of the dorsal impressed line apparent and very narrow. 20 mill. long. Larger than C. volvens, which it closely resembles, and is probably the *chalcites* of Dej. Cat.

Aphodius *lutulentus*. Black, somewhat glossy, minutely punctate, elytra obscurely striate, tarsi testaceous, 7 mill. long, 3 lat. Scarab. lutulentus, Knoch, in Mels. Cat. Distinct from *oblongus*, Say, and Germar's name *emarginatus* is preapplied. Boston collection No. 743.

Phileurus *castaneus*. Blackish chesnut above, reddish beneath; head excavated above, with a tubercle on each side: pronotum minutely punctured, dorsal furrow large, coarsely punctured, with a tubercle anteriorly: elytra coarsely punctate-striate, each alternate interstice being smaller; the rows of punctures have the appearance of being in pairs. 20 mill. long. Hab. Alabama. P. castaneus? Dej. Cat.

Bothrideres *geminatus*. Dull testaceous, sometimes dark-brown above: head scabrous: pronotum with 3 longitudinal ridges upon each side, with a short one interposed between the inner and second one anteriorly, inner ones sinuated, leaving an obcordate depression between them posteriorly, in which are two posterior and one anterior approximate elevations; elytra with a sutural and 4 lateral ridges, having a stria upon each side of the base, 5-6 mill. long. B. geminatus, Dej. Cat.

Ichthidion *murinum*. Slender, dull reddish brown, rough with numerous deeply impressed punctures, and hirsute with pale ochraceous, which forms small scattered spots upon the elytra; mesial line of the vertex and pronotum distinctly impressed. 10 mill. long, 2½ lat. I. murinum, Dej. Cat.

Anthicus *bifasciatus*. Hirsute, dull testaceous, head brown; elytra minutely punctate; tip, and a transverse central band, interrupted towards the suture and directed backwards, blackish. 3 mill. long. Hab. Penna. Allied to *basillaris*, Say.

Anthicus *4-guttatus*. Black, punctate-scabrous, hirsute with yellowish; elytra with a large round yellowish spot near the base, and another behind the middle: trophi and tarsi testaceous, antennæ darker. 4½ mill. long. Hab. Penna.

By permission of the Society, the Committee to whom was referred Mr. Conrad's paper, read at the meeting of the 19th September, presented a report in favour of its publication.

Descriptions of a New Genus, and of twenty-nine new Miocene, and one Eocene Fossil Shells of the United States.

By T. A. CONRAD.

CARDITAMERA.

C. *carinata*. Trapezoidal, slightly contracted from beak to base: ribs about 18, profound, flattened on the back, square, carinated on the posterior margin; posterior ribs rounded and the carina obscure or wanting; middle and anterior ribs about as wide as the interstices; all the costæ with transverse coarse profound wrinkled lines.

Locality. Newbern, N. C.

Compared with C. *arata*, this species differs, in being less ventricose over the umbonial slope, in having a carina on the ribs, more distant transverse striæ, the beaks further from the anterior margin, and the posterior side narrower, with a more oblique posterior margin.

C. *protracta*. Trapezoidal, elongated, compressed, widely contracted from beak to base; dorsal and basal margins nearly parallel; ribs about 15, the middle ones triangular and crenated; posterior ribs rounded and having distant arched squamose coarse striæ; summit of the beaks scarcely prominent above the hinge line.

Locality. Patuxent River, St. Mary's Co., Md.

ARCA.

A. *triquetra*. Subtriangular, profoundly ventricose; umbo very broad and prominent, beaks remote, profoundly incurved; disk flattened posteriorly; ribs about 30, narrow, not very prominent, square; surface of the valves with coarse crowded concentric imbricated lines; umbonial slope forming a right angle with the posterior slope; cardinal area dilated; cardinal plate narrow, the teeth small.

Locality. Cliffs of Calvert, Maryland.

This species differs from A. *callipleura* in having narrower ribs which are neither crenated nor longitudinally striated as in that species. The A. *callipleura* is not flattened posteriorly on the disk, and the umbonial slope is slightly arched in the middle, while in the triquetra it is somewhat concave.

NUCULA.

N. *liciata*. Ovate-acute, ventricose, with about 15 concentric lamelliform striæ; posterior side much shorter than the anterior; anterior side slightly recurved, with an oblique slight submarginal furrow, causing a slight emargination of the base near the extremity.

Locality. Cliffs of Calvert, Md.

PECTUNCULUS.

P. *parilis*. Orbicular, slightly oblique; height and length equal; posterior superior margin obliquely subtruncated; ribs defined by slightly impressed narrow radii; radiating striæ minute and obsolete; marginal teeth prominent.

Locality. Cliffs of Calvert, Md.

Differs from P. carolinianus, in being oblique, narrower towards the beaks, less convex, and in the much less prominent ribs, &c.

PECTEN.

1. P. *biformis*. Inequivalved; superior valve nearly flat; inferior ventricose; ribs 5 or 6, on the umbo, large, convex, with minute reticulated striæ; from a concentric sulcus below the umbo, the ribs suddenly become less prominent, very wide and composed of fasciculi of smaller irregular ribs; ears equal, small.

Locality. Petersburg, Va. Mr. Tuomey.

This singular Pecten is allied to P. decemnarius, but the peculiar character of the ribs is a sufficient distinction. The lower valve, from which the description is chiefly taken, has large convex ribs above, longitudinally striated, and separated by a concentric groove from the numerous small ribs below; the interstices have smaller costæ; young shells have the superior valve frequently slightly concave.

2. P. *tricenarius*. Suborbicular; inferior valve convex, ribs 30 to 33, somewhat unequal in size, crossed by minute lines; sinus of the ear profound.

Locality. Found with the preceding species by Mr. Tuomey.

3. P. *vicenarius*. Suborbicular, inequivalved, the superior valve ventricose, the inferior plano-convex; ribs about 20, somewhat flattened on the back; ribs of superior valve narrower and more distinct than those of inferior valve; surface of both with crowded regular concentric wrinkles; ears equal, moderate in size; sinus of inferior valve not profound.

Locality. Wilmington, N. C. Mr. Hodge.

TELLINA.

1. T. *lenis*. Subelliptical: beaks medial; anterior margin obliquely truncated, the extremity acutely rounded; dorsal margins equally oblique; posterior basal margin obliquely subtruncated; basal margin nearly straight in the middle and towards the anterior extremity where it is arched; the extremity considerably above the line of the base; posterior side with an oblique narrow fold.

Locality. Cliffs of Calvert, Md.

2. T. *arctata*. Ovate, thin, slightly ventricose along the umbonial slope; flattened in the middle of the valve; dorsal and basal margins parallel: posterior margin rounded obliquely inwards; basal margin slightly contracted in the middle; beaks slightly prominent; posterior dorsal margin slightly sinuous; surface with concentric prominent acute lines; cardinal plate rather wide; lateral teeth none.

Found in North Carolina, by Professor Mitchell, of Chapel Hill.

LUCINA.

L. *multistriata*. Oval, equilateral, slightly ventricose, with fine prominent closely arranged concentric and minute radiating lines; disk with two or more distinct undulations on the inferior half; beaks prominent; dorsal margins profoundly declining: anterior lateral tooth distinct, remote; inner margin minutely crenulated; lunule elliptical, slightly impressed. Height one-third of an inch.

Locality. Wilmington, N. C.

AMPHIDESMA.

A. *æquata*. Longitudinally oval, convex, with about 17 laminated concentric striæ: anterior and posterior margins nearly equally rounded; basal margin very regularly rounded; beaks slightly prominent: one cardinal tooth in the right valve, and no lateral teeth. Length less than one-third of an inch.

Localities. St. Mary's Co., (Md.) Wilmington, N. C.

CRASSATELLA.

C. *turgidula*. Oblong-ovate, slightly ventricose; surface with coarse lines of growth, and concentric undulations obsolete except on the umbones where they are strongly marked and wide; beaks submedial; umbones flattened; anterior dorsal margin straight; posterior extremity truncated and nearly direct, more oblique in young shells; basal margin swelling a little anteriorly, posteriorly straight to the extremity which is obliquely angulated.

Locality. Calvert Co., Md.

Allied to C. Marylandica, but has less prominent, more flattened umbones, which are widely and profoundly undulated. It is, also, more ventricose, and has a more regularly arched basal margin. Young shells of the two species are widely unlike each other.

CREPIDULA.

C. *spinosa*. Oval, ventricose, rather thick, with longitudinal rib-like series of thick, elevated, foliated, erect spines, and coarse transverse wrinkles; diaphragm sinuous, the margin profoundly sinuous.

Locality. James River, near Smithfield, Va.

Differs from C. *costata*, Morton, in wanting the numerous fine costæ, and in having fewer, much longer, and thicker spines.

FULGUR.

F. *rugosus*. Pyriform, with rather coarse rugose revolving lines, disposed to alternate in size, and very distinct numerous lines of growth; whorls scalariform, with a tuberculated carina, the margin of which presents a waved outline, the tubercles being obtuse; spire prominent, profoundly channelled at the suture, the margin of the channel carinated in young shells. Length 3 inches.

Locality. St. Mary's River, Md.

Compared with F. *coronatus*, this species, when adult, is comparatively shorter and more inflated, with a shorter spire, much coarser revolving lines, which with the more numerous, more obtuse tubercles, give the shell a very different appearance from the *coronatus*. In an adult specimen of the latter species there are 13 spiniform tubercles on the body whorl. In the allied species

when adult, there are 17 much less elevated, more irregular, and more obtuse tubercles.

BUCCINUM.

1. B. *protractum*. Subfusiform, elevated; with robust, flattened spiral ribs about as wide as the interstices, both ribs and furrows crossed by distinct prominent longitudinal lines; aperture long and elliptical; labrum with short, submarginal prominent lines; beak slightly recurved. Length, one inch and a third.

Locality. Calvert Cliffs, Md.

2. B. *lienosum*. Obovate, with distant spiral flattened, not very prominent lines, between which are usually 3 lines, the middle one largest; whorls of the spire slightly convex; body whorl ventricose; lines of growth distinct; columella with two distant plaits, the inferior one at the angle which is prominent. Length, one inch and two-thirds.

Locality. Calvert Cliffs, Md.

3. B. (Pollia) *filicatum*. Short-fusiform, whorls 5 or 6, sub-scalariform, with very prominent spiral striæ, and one or two intermediate finer lines; whorls with longitudinal distant ribs; aperture rather less than half the length of the shell; beak short; columella with slightly prominent folds; labrum with acute prominent lines obsolete on the margin, and extending far within the aperture.

Locality. James River, Va.

Resembles *Fusus cinereus* of Say, but is much shorter in proportion, and has more prominent spiral lines; but the folds on the columella constitute the most marked distinction.

4. B. *sexdentatum*. Acutely oblong-ovate, with regular prominent compressed longitudinal ribs, and fine revolving lines, one or two of which, near the suture are larger and more distinct; towards the base the lines are more profound; spire elevated; volutions 9, with straight sides: suture impressed; aperture about one-third the length of the shell; labrum with 6 dentiform tubercles within. Length half an inch.

5. B. *bilix*. Elliptical, thick, with alternated revolving lines crossed by rugose lines of growth; spiral conical, volutions convex; one or two towards the apex longitudinally ribbed; suture profound: aperture about two-thirds the length of the shell; labrum ribbed within. Length one inch.

Locality. James River, Virginia.

6. B. *fossulatum*. Subovate with numerous impressed alternated revolving lines; body whorl ventricose; whorls 4 or 5, sides convex; spire somewhat conical, with a channel at summit of the volutions, which has a rectilinear slope to the suture; columella short; fold at base of the shell acutely carinated. Length one inch and a third.

7. B. *præruptum*. Ovate-acute, with longitudinal very regular and equal compressed ribs, and regular revolving raised lines, about 12 on the body whorl, at base of which is a broad fold with 4 revolving lines on it; labium reflected; columella obliquely truncated at base; aperture rather more than one-third the shell's length. Length one-third of an inch.

CANCELLARIA.

C. *corbulu*. Short, subovate; whorls subscalariform; ribs 8 or 9 on the

body whorl, prominent, flattened laterally, and crossed by prominent alternate striæ, the larger ones rather distant and elevated; columella with 3 plaits, rectilinear; base subumbilicated; aperture nearly half the length of the shell. Length, half an inch.

From Maryland.

OLIVA.

O. *duplicata*. Elliptical; spire conical, volutions 5, rectilinear; labrum about half as long as the shell; aperture less, caused by a thick deposit on the upper part of the columella, which extends more than half the distance from the summit of the labrum to the suture; labrum with a rectilinear margin: aperture narrow and somewhat oblique. Length, half an inch.

Locality. Wilmington, N. C. Mr. Hodge.

PYRAMIDELLA.

P. *arenosa*. Subulate, whorls 9 or 10, with rectilinear sides; a deep angular channel at the suture, minutely crenulated; channel passing over the middle of the back of body whorl, and the superior margin carinated; columella with 2 plaits, the superior one profound and acute. Length half an inch.

Locality. Suffolk, Virginia.

FUSUS.

F. *migrans*. Fusiform, elongated; surface with crowded unequal impressed spiral lines, and strong arched lines of growth; whorls contracted above, rounded towards the suture; whorls near the apex longitudinally ribbed; aperture half the length of the shell; beak much recurved. Length, three inches and a half.

Locality. Calvert cliffs, Md.

F. *devexus*. Fusiform, with obtuse longitudinal ribs, obsolete near the upper margin where the whorls are somewhat contracted; ribs on the body whorl disappear just below the angle; above which the whorl is flattened, wide and profoundly declining; surface with robust, prominent and fine intermediate spiral lines: aperture more than half the length of the shell: beak sinuous.

Locality. Occurs with the preceding species.

Length, two inches.

VOLUTA.

V. *mutabilis*. (Fasciolaria mutabilis,) Journ. Acad. Nat. Sciences, vol. vii, p. 135. Silliman's Journ. vol. xli. p. 136, pl. ii., fig. 7.

OVULA.

O. *iota*. Narrow-elliptical, with minute spiral lines towards the base; inner margin regularly arched above the middle of the shell, where the aperture is very narrow, widening a little towards the apex; aperture gradually expanding from the middle to the base; labrum very slightly rounded; labium reflected.

Length, quarter of an inch.

Locality. Calvert cliffs, Md.

MONODONTA.

M. *exoluta*. Depressed: volutions slightly convex, with revolving lines, most prominent on the periphery and base; 7 or 8 lines on the base increasing in

size towards the umbilicus which is profound; labrum with a series of minute short prominent irregular lines on the inner submargin; tooth at base of columella small, transverse, somewhat compressed; beneath is a smaller pyramidal tooth: aperture round, more than half the length of the shell. Width nearly half inch.

ECPHORA, (Conrad.)

Shell fusiform, ventricose, with revolving costæ; aperture oval, suddenly contracted towards the base or in the beak, which is reflected; labrum united with the labium above; labium reflected; margins of the beak so elevated as to form a profound very oblique channel towards the base of the shell.

Fusus 4-costatus, Say, Journ. A. N. S. vol. iv.

KELLIA.

K. *mactroides*. (Lepton mactroides.) Fossil shells of Tertiary formations, p. 19, pl. x. fig. 5.

K. *fabagella*. Amer. Marine Conch. pl. 11, fig. 3.

ANOMIA.

A. *jugosa*. Ventricose, subulated, with concentric waved lines of growth; ribs irregular, broad, rounded, distant, and some of them with remote, thick, slightly prominent scales. Height one and a quarter inches.

An Eocene species from the white limestone of S. Carolina, collected by Edmund Ruffin, Esq. From Mr. Tuomey.

ECHINODERMATA.

ECHINUS.

E. *improcerus*. Depressed or discoidal, anus suboval; 5 v-form granulated lines diverge from the anus, about 6 tubercles on each single line; between these two shorter tuberculated lines; interstices wide and without lines or tubercles; whole surface minutely granulated; periphery profoundly tuberculated, the tubercles subequal; on the base the tubercles are smaller and numerous. Diameter half inch.

Locality. James' river, near Smithfield, Virginia.

E. *philanthropus*. Depressed-hemispherical, with closely arranged series of mammillated radii, about 14 mammillæ on each series of the larger radii; interstices crowded with unequal small tubercles; at the sutures is a series of unequally arranged minute pores. Diameter three quarters of an inch.

Locality. Found with the preceding species.

ADDENDA.

VENUS.

V. *cribraria*. Subtrigonal, slightly ventricose, with about 25 concentric elevated recurved lamelliform ribs, on the inferior side of which are elevated transverse lines; lunule cordate, laminated, suture profound; inner margin profoundly crenulated. Length one and a quarter inch. Height one and one-eighth nearly.

Locality. Wilmington, N. C.; Neuse river below Newbern, N. C.

Resembles somewhat V. punctulata, Val. (Enc. Method. t. 267, p. 4,) of Florida, but has much more prominent, narrow and more remote ribs. In this respect it differs from V. *cortinaria*, Rodgers.

PLICATULA.

P. *densata*. Ovate, thick, profoundly and irregularly plicated: inferior valve ventricose, its ribs acute, with arched spiniform scales; cardinal teeth large, curved, laterally striated, crenulated on the margins; large cardinal tooth in each valve slightly bifid, broad; muscular impressions prominent. Length one inch and an eighth.

Locality. Cumberland co., New Jersey.

The valves have about 10 folds, and the lower valve closely resembles a variety of OSTREA *virginiana*.

CREPIDULA.

C. *densata*. Oblong, thick and ponderous, profoundly ventricose, with coarse lines of growth; umbo very prominent, somewhat compressed; diaphragm slightly depressed on each side, the margin much contracted, near the middle angulated; from the angle to the anterior side rectilinear. Length one inch and a quarter.

Locality. Natural well, Duplin co., N. C.

Differs from C. *costata*, Morton, in the profound angular emargination of the diaphragm, in being proportionally narrower, and without ribs or strias.

STATED MEETING, OCTOBER 11, 1843.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

Annales des Mines. Quatriéme Série. Tome 2d, 5me Liv. de 1842. In Exchange.

Transactions of the Linnean Society of London. Vol. 19, Part 2d; List of Members for 1843; and a portion of the Proceedings of the Society. From the Society.

A Treatise on some of the Insects of New England, which are injurious to vegetation. By Thaddeus William Harris, M. D. 8vo. Cambridge, 1842. From a friend of Science.

WRITTEN COMMUNICATIONS.

An extract of a letter from Dr. Harris, of Cambridge, Mass., addressed to the Librarian of the Academy, was read, proposing an exchange of duplicate volumes of the Academy's Journal, contained in the Library of Harvard University, for other volumes which are wanting:

Whereupon, on motion of the Librarian, it was Resolved, That the Publication Committee be authorised to present to Harvard University the numbers of the Journal which are deficient in the library of that institution.

STATED MEETING, OCTOBER 24, 1843.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Gymnothorax ——— in spirits, from the West Indies. From Mr. Cassin.

A collection of Insects from the neighbourhood of Philadelphia. From Mr. S. B. Ashmead, Jr.

A finely prepared specimen of a Balistes from Frying-pan Shoal, Cape Fear. From Mr. Wm. M. Maull, through Mr. Ashmead.

Chlorophyllite from New Hampshire. From Dr. Elwyn.

Blue Carbonate of Copper, from Berks County, Pennsylvania. From Mr. Ashmead.

DONATIONS TO LIBRARY.

Proceedings of the American Philosophical Society, No. 26, Vol. 2d. April and May, 1843. From the Society.

American Journal of Science and Arts, Vol. 45, No. 2, October, 1843. From the Editors.

Proceedings of the Boston Society of Natural History, from January 6, 1841, to June 21, 1843. From the Society.

WRITTEN COMMUNICATIONS.

A letter was read from Mr. John L. Stephens, dated New York, Oct. 10, 1843, acknowledging the reception of his notice of election as a Correspondent, and of his diploma.

A communication from Mr. Haldeman was read, describing another new species of Pasimachus, named by him P. *substriatus*, which was referred to the Committee on his former paper.

NEW BUSINESS.

On motion, Resolved, That the Publication Committee be authorised to present to Charles Lucien Bonaparte, Prince of Canino, the sixth, seventh and eighth volumes of the Journal of the Academy.

MEETING FOR BUSINESS, October 31, 1843.

Mr. Lukens in the Chair.

The Report of the Corresponding Secretary for the last month was read and adopted.

The Committee to whom was referred the following description by Mr. Haldeman, reported in favour of its publication:

Pasimachus *substriatus*. Black, somewhat shining; head with the longitudinal impressions rather indistinct: pronotum smooth, mesial line slightly impressed, a subtriangular impression near the external angle, and another transverse medial one near the base: elytra scarcely striate. 31 millim. long. Hab. Long Island.

Of the known species, this one bears the nearest resemblance to P. *subsulcatus*, Say. In the collection of Captain Le Conte, to whom I am indebted for the opportunity of characterising it.

PROCEEDINGS

OF THE

ACADEMY OF NATURAL SCIENCES

OF PHILADELPHIA.

VOL. I. NOV. AND DEC., 1843. Nos. 32, 33.

STATED MEETING, NOVEMBER 7, 1843.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

A very large and fine living specimen of Crotalus durissus from Benton, Mississippi. Presented by Dr. Goddard.

A collection of Reptilia, in spirits, from Jamaica. From Dr. C. W. Pennock.

Specimen of Vespertilio rufus, taken 20 miles at sea, off the Capes of Delaware. From Captain Baker, through Dr. Blanding.

Gymnothorax ——, and a species of Tetrodon, from Frying-pan shoal, and a bottle containing various crustacea and fish, from Africa. Presented by Mr. John Cassin.

Animal of a Fasciolaria, an Emys, several Hippocampi, and a specimen of a large crustaceous animal, from Yucatan. Presented by Benjamin M. Norman, Esq.

Rhætizite, from Lincoln county, N. C. From Dr. Blanding.

Full-grown specimen of Platirostra edentula, Lesueur, from the Ohio, above Pittsburg. From Mr. Philip Lowry, Jr.

WRITTEN COMMUNICATIONS.

A letter was read from Dr. John Locke, of Cincinnati, dated October 21, 1843, detailing some of the peculiarities of the fossil beds of the cliff limestone of the Miami river, in the vicinity of Dayton, Ohio; and informing the Academy that Mr. John Van Cleve, of Dayton, was engaged in translating that portion of the work of Dr. Goldfuss, which related to our fossil deposits, with the intention of publishing the same at an early period.

STATED MEETING, NOVEMBER 14, 1843.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

Bulletin de la Société Imperiale des Naturalistes de Moscou. Nos. 2, 3, 4, for 1841; No. 1 for 1842, and No. 1, 1843. From the Society, through Mr. Charles Cramer.

Revue des Fossiles du Gouvernement de Moscou. Par G. Fischer de Waldheim. No. 2, Fossiles de Terrain Oolithique. From the Author.

Two tracts:—1st. Ornithological Observations, by John McClelland, Calcutta; and 2d. On the Materia Medica of Meywar in India. By Alexander Duncan, Calcutta. From Dr. Morton.

Remarks on Tides and the prevailing currents of the Ocean and Atmosphere. By William C. Redfield. From the Author.

Abstract of a paper read before the American Philosophical Society, May 29, 1843, entitled "Descriptions of some new

fossil shells from the Tertiary of Petersburg, Virginia." By Henry C. Lea, of Philadelphia. From the Author.

First Annual Report of the Secretary of the Commonwealth to the Legislature, under act of March, 1842, relating to the registry and returns of births, marriages, and deaths in Massachusetts. February, 1843. From Dr. Morton.

Copy of the Constitution and By-Laws of the Northern Academy of Arts and Sciences, at Hanover, N. H.; and second annual report of the Officers and Students of Dartmouth College, N. H., for the Academical year, 1843-4. From the Northern Academy.

WRITTEN COMMUNICATIONS.

A letter was read from G. Fischer de Waldheim, Vice President of the Imperial Society of Moscow, dated 7th of March, 1843, accompanying the above donation of the Society's Bulletin.

STATED MEETING, NOVEMBER 21, 1843.

Mr. PHILLIPS in the Chair.

DONATIONS TO LIBRARY.

Calcutta Journal of Natural History, conducted by John McClelland. Nos. 9, 10, 11 and 12. From the Editor.

The following Memoirs on the Law of Storms in India, presented by the Author, Henry Piddington, Esq.:

Fourth Memoir: containing researches about the Golconda's storm, or the Typhoon of 22d to 24th of September, 1840, in the China seas.

Fifth Memoir: being researches about the Madras hurricane of 16th of May, 1841.

Sixth Memoir: Storms of the China seas from 1780 to 1841.

Seventh Memoir: On the Calcutta hurricane of 2d and 3d of June, 1842.

Printed circular from the "Museum of Economic Geology of India." From Mr. Piddington.

WRITTEN COMMUNICATIONS.

Two letters were read from Mr. Piddington, dated 28th of February and 25th of March, 1843, in reference to his Memoirs, and requesting of the Academy duplicates of any works or pamphlets on meteorological subjects in its possession; and also acknowledging the receipt of the Academy's Proceedings from the Corresponding Secretary. He likewise solicited attention to the circular of the "Museum of Economic Geology," a newly-formed institution in India, and proposed exchanges with it.

Mr. T. A. Conrad read a paper intended for publication, entitled "Descriptions of a proposed new genus of Trilobites, and of fifteen new species of Silurian fossils; and also of new Tertiary fossils: with observations on the Trenton limestone, and the lead-bearing limestone of Wisconsin."

Referred to a Committee, consisting of Mr. Phillips, Dr. Morton, and Mr. R. C. Taylor.

MEETING FOR BUSINESS, NOVEMBER 28, 1843.

VICE PRESIDENT MORTON in the Chair.

After receiving some reports, and transacting other preparatory business, the Society proceeded to ballot for Members and Correspondents, and the following gentlemen were announced duly chosen:

MEMBERS.

Samuel Wetherill, of Philadelphia.
Thomas S. Stewart, of Philadelphia.
Joseph P. Heister, M. D., of Reading, Pennsylvania.

CORRESPONDENTS.

Prof. John Johnston, of Middletown, Connecticut.
Dr. Frederick Melsheimer, of Dover, York county, Pennsylvania.
J. W. Mighels, Esq., of Portland, Maine.
Wm. B. Hodgson, Esq., of Savannah, Georgia.

STATED MEETING, DECEMBER 5, 1843.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

Observations on the external characters and habits of the Troglodytes niger, Geoff., by Thomas S. Savage, M. D.; and on its organization, by Jeffries Wyman, M. D. From Dr. Wyman.

Transactions of the Historical and Literary Committee of the American Philosophical Society, Vol. iii., Part 1. From Mr. Samuel Breck.

WRITTEN COMMUNICATIONS.

The Chairman read an extract from a letter from Prof. Gray, of Cambridge, Massachusetts, dated 15th of November, 1843, stating that a copy of the Journal of the Academy

transmitted to Prof. Von Martius, as Secretary of the Bavarian Academy, had not been received by the latter, and requesting attention to it; and also containing a portion of a letter from A. De Candolle, proposing to the Academy an exchange of its Journal with him for the Memoirs of the "Société de Physique et d'Histoire Naturelle de Genéve."

Also, a letter from Mr. Henry Cramer, dated St. Petersburg, 1st of May, 1843, referring to a recent donation forwarded by him to the Academy, of the Transactions of the Imperial Mineralogical Society of Russia, and requesting a copy of the Journal of the Academy for that Society.

Whereupon, on motion of Mr. Phillips, it was

Resolved, That a copy of the Journal be transmitted to the Imperial Mineralogical Society of Russia.

STATED MEETING, DECEMBER 12, 1843.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO MUSEUM.

Fossil fern impressions, from Pottsville, Pennsylvania. From Mr. Stephen Taylor, Jr.

Sandstone from the Quarries of Hadjur Silsilis, and Syenite from Syene in Egypt. From Mr. George R. Gliddon.

A small collection of insects from the vicinity of Philadelphia. From Mr. R. Kilvington.

Two specimens, in spirits, of Pholas truncata, with the animal attached, from New York Bay. From Dr. J. C. Jay, of New York.

DONATIONS TO LIBRARY.

Notice of some new works recently published on the nomenclature of Zoology. By Augustus A. Gould, M. D. (Extracted from Vol. xlv., No. 1, of American Journal of Science.) From Dr. Gould.

Monograph of the species of the genus Pupa found in the United States. By Augustus A. Gould, M. D. From the same.

WRITTEN COMMUNICATIONS.

A letter was read from the Rev. Adam Sedgwick, dated Cambridge, England, November 7th, 1843, acknowledging the reception of his notice of election as a Correspondent, and tendering his services in any way conducive to the interests of the Academy.

VERBAL COMMUNICATIONS.

Dr. Chaloner called the attention of the Society to a number of very fine specimens on the table of fossil bones of the Mastodon and Elephant, brought by Mr. S. H. Whipple, from Benton County, Missouri, and forming part of a large collection in his possession, and now arranged for inspection in this city. A list was presented by this gentleman, with an estimate of the weight of the specimens, which he supposed to exceed 2000 lbs., accompanied by the following statement:

"These bones were found in the County of Benton, Missouri, about one half mile from the river Osage, 70 miles south of the Missouri river, at Boonville, in north latitude 38° 10′, and west longitude 16° 40′." After adverting to the character of this portion of the country, which is broken up into ridges and rocky elevations of considerable extent, with intervening vallies, through which pass small streams of water, he says: "In one of the vallies referred to, just at the point where a fertile bottom is connected with a more elevated region, is a small marsh, perhaps of an acre in extent. One half of this marsh is covered by a soil different from that composing the marsh itself. This soil appears to

have been derived from the ground immediately adjoining it, which is now a cultivated field, but was formerly covered with oak timber. The field has a gentle slope towards the marsh from a rocky ridge, composed partly of what appears to be limestone, in irregular columns, of from 10 to 20 feet elevation above the surrounding portion of the ridge, and its soil bears evidence of having been washed from the ridge, and, as has been stated, now forms part of the upper surface of the marsh. It was under this deposit, and at the depth of from two to twelve feet, imbedded in the marsh, that these bones were found, lying in the utmost confusion and disorder."

STATED MEETING, DECEMBER 19, 1843.

VICE PRESIDENT MORTON in the Chair.

DONATIONS TO LIBRARY.

Proceedings of the Royal Irish Academy, Vol. i., from 1836 to 1840; Parts v. and vi. of same from 1840 to 1842; nine Nos. of Journal of Franklin Institute, and some minor publications. From Mr. Phillips, in exchange for duplicate copies of other works from the Library.

WRITTEN COMMUNICATIONS.

A letter was read from Mr. William Oland Bourne, dated Brooklyn, Long Island, December 15, 1840, accompanying a printed "Introductory notice of the Geology of King's county," of which he is the author.

Mr. Conrad read a paper containing additional descriptions of fossils from the Tertiary of Virginia; intended as an appendage to his former paper read at the meeting of 21st of November last. Referred to the committee appointed on that paper.

MEETING FOR BUSINESS, AND ANNUAL MEETING,

DECEMBER 26, 1843.

VICE PRESIDENT MORTON in the Chair.

The Committee, to whom was referred Mr. Conrad's paper, read November 21st, and the additions thereto read December 19th, reported in favour of publication.

Descriptions of nineteen species of Tertiary fossils of Virginia and North Carolina.

By T. A. CONRAD.

ANOMIA.

ANOMIA *Ruffini*. Subovate or suborbicular, irregular; larger valve with concentric laminæ, sometimes obsolete, often closely arranged towards the base, plicated on the margin; disk with numerous irregular interrupted radiating furrows and lines; hinge area wide; muscular impression very large, ovate-elongated. Height of the longest specimen, two and a half inches.

Locality. Pamunkey river, Kent county, Virginia.

This fine large species was found by Edmund Ruffin, Esq., and I take pleasure in dedicating it to a gentleman distinguished for his science, and his successful and enlightened efforts to improve the agriculture of his country.

ARCA.

ARCA *propatula*. Rhomboidal, thick and ponderous; posterior side produced; sides flattened, slightly concave towards the base; umbonial slope rounded, rather elevated; ribs about thirty-two, square, not profoundly prominent, about equal in width to the interstices, which have transverse imbricated lines; ribs largest about the umbonial slope, very distinct on the posterior slope, which is concave towards the hinge line; posterior margin oblique, concave, extremity widely rounded; summit of umbo moderately elevated, slightly retuse; cardinal area wide, with diverging grooves; series of teeth slightly sinuous anteriorly; teeth numerous; at the posterior extremity, the series suddenly becomes dilated, and the teeth interrupted or tubercular; inner margin crenate, crenæ profound, and remote posteriorly. Length, four inches; height, rather more than one and one-third inches.

Locality. James River, below City Point. Petersburg, Mr. Tuomey; Ware river, Gloucester county, Virginia, Mr. Ruffin.

Perhaps this may prove to be an old specimen of A. *arata*, Say.

ARCA *scalaris*. Obliquely rhomboidal, elevated, ventricose, ribs about twenty-three, broad, square, prominent, profoundly and robustly crenate, wider than the interstices, seven on the posterior slope, prominent; posterior slope flattened; umbonial slope angulated; summit elevated, narrowed; anterior margin obliquely truncated; anterior basal margin obliquely subtruncated; posterior extremity subangulated; beaks remote; area with transverse slightly impressed lines; cardinal teeth irregular, oblique towards the extremities of the hinge line; within with furrows corresponding to the ribs; margin profoundly crenate. Length, two inches: height, one and a half inches.

Locality. Petersburg, Virginia. Mr. Tuomey.

Allied to A. *incongrua*, Say. The description applies to the left valve only, as the opposite one has not yet been found.

CYRENA.

CYRENA *densata*. Subtriangular, thick, convex, with robust lines of growth; anterior margin obtusely rounded; basal margin profoundly and regularly curved to the posterior extremity, which is subtruncated, direct, and greatly above the line of the base; beaks central, summits elevated; teeth large, robust, very prominent, three in one valve, and two in the opposite; middle tooth of the right valve bifid; lateral teeth elongated, robust, anterior tooth truncated, suddenly deflected at the extremity; posterior tooth distant. Length, one and a half inches; height, one inch and seven-eighths.

Locality. Vicinity of Petersburg, Virginia. Mr. Tuomey. Rare.

MACTRA.

MACTRA *triquetra*. Triangular, thick, ventricose; anterior margin obtusely rounded; posterior margin obliquely truncated; extremity angular; anterior and basal margins regularly curved: posterior basal margin obliquely truncated, and the disk slightly flattened above; umbonial slope forming a right angle with the posterior depression; beaks slightly remote, central, summits profoundly elevated; lateral teeth robust; fosset small, ovate. Length, one and a quarter inches; height one inch.

Locality. Vicinity of Petersburg, Virginia.

I found a single perfect valve of this species, which is much larger and proportionally shorter than M. *congesta*, and differs especially in the beaks being distant from the hinge margin.

VENUS.

1. VENUS *capax*. Cordate, suborbicular, ventricose, with concentric lamelliform prominent lines; posterior margin curved, extremity truncated, direct, and remote from the line of the base; basal margin profoundly curved; lunule dilated, cordate, defined by a groove, and not distinctly impressed; inner margin finely crenulated.

Locality. Pamunkey river, Kent county, Virginia. Mr. Tuomey.

This shell is of a more rotund, tumid form than any of the species allied to V. *mercenaria*, and much more capacious; the lunule is shorter and wider.

2. VENUS *permagna*. Subtriangular, cordate, profoundly ventricose, thick and ponderous, with coarse concentric recurved rib-like lines, elevated,

closely arranged, and lamelliform on the sides; lunule cordate, elongated, defined by a deeply impressed line; posterior side subcuneiform, extremity obtusely rounded or subtruncated; cardinal plate broad; muscular impressions large; margin strongly crenulated. Length, seven inches.

V. *permagna*, Foss. of Tert. Formations, p. 9.

Locality. Neuse river, below Newbern, North Carolina. Miocene?

This is perhaps the largest VENUS known: it is remarkably rough and ponderous. In outline it approaches V. *Rileyi*, but it is greatly more ponderous and ventricose. The usual size is about 4½ inches in length.

ARTEMIS.

ARTEMIS *elegans*. Lentiform, regularly convex, with strongly marked rather distant impressed concentric lines; on the other posterior side these are closely arranged and profound, forming prominent recurved lines, which become acute or lamelliform towards the posterior margin; posterior hinge margin elongated, slightly convex, oblique; lunule cordate, deeply impressed. Height, two and a half inches; length, two inches and seven-eighths.

A. *elegans*. Fossils of Tertiary Formations, p. 30.

Locality. Neuse river, below Newbern, North Carolina. Miocene.

This beautiful shell is allied to A. *concentrica*, but is readily distinguished by its stronger remoter stria, by its convexity of disk, and its more robust anterior cardinal teeth; the posterior teeth are less oblique, forming a wider space between them and the anterior teeth. The posterior hinge margin is not so elongated, in proportion, as in the *concentrica*.

I found this and the kindred species recent on Mullet Key, at the entrance of Tampa Bay, and, fortunately, specimens of the young of both, which show a marked difference in specific character.

LORIPES.

LORIPES *elevata*. Suborbicular, elevated, thin, ventricose, smooth, not oblique; beaks medial; hinge margins very oblique; posterior margin truncated, direct, very regularly rounded towards the base; anterior basal margin obliquely truncated; cardinal plate thin, arched, with an elongated channel anteriorly; cardinal teeth profoundly diverging. Length, nine-sixteenths of an inch; height the same.

Locality. Neuse river, below Newbern, North Carolina. Miocene?

Proportionally more elevated than LORIPES *americana* (*Mysia*,) thinner, not oblique like that species, and very distinct.

SOLEN.

1. SOLEN *directus*. Linear, straight, except towards the summit, where it is slightly recurved, gradually widening from the hinge downwards; basal margin rounded slightly towards the posterior extremity; anterior margin obliquely truncated, not reflected; cardinal teeth, one in the right valve, compressed, in the opposite valve two, the superior one very small and near the extremity, the other somewhat distant, elevated, robust, slightly recurved. Length, four inches.

Locality. Neuse river, below Newbern, North Carolina. Miocene?

I am doubtful of the geological age of the three fossils above described, as we know not the group among which they occur.

2. SOLEN *ensiformis*. Linear, slightly curved, gradually narrowed from the middle to the posterior extremity, which is subcuneiform; anterior margin obliquely subtruncated. Length, three inches.

Locality. St. Mary's river, Maryland. Miocene.

TURRITELLA.

TURRITELLA *bipertita*. Turrited, thick; suture profoundly excavated; whorls flattened, divided nearly in the middle by a deeply impressed revolving line, margined on each side by a fine impressed line; inferior volutions carinated at base; lines of growth oblique, meeting at an angle at the groove in the middle of each volution. Length, ———; width, seven-eighths of an inch.

Locality. Vicinity of Petersburg, Virginia. Mr. Tuomey.

This large species is very distinct from all others, and remarkable for the profound channel between the whorls.

SCALARIA.

SCALARIA *procera*. Subulate, turrited, volutions scalariform, contracted inferiorly, with obsolete revolving impressed lines: ribs thick, elevated, reflected, distant with sharp triangular reflected aculeii on the shoulder of each volution; base with a revolving interrupted carina; aperture longitudinally obtusely oval. Length, ———; width of body whorl, nearly half an inch; three volutions from the base measure one inch.

Locality. Vicinity of Petersburg. Mr. Tuomey.

PLEUROTOMA.

PLEUROTOMA *multisecta*. Turrited, with closely arranged deeply impressed revolving lines, and longitudinal robust prominent ribs; superior portion of each whorl destitute of ribs, with minute revolving lines, and a sharp revolving slightly undulating carina margining the suture; aperture elliptical, rather more than one-third the length of the shell. Length, one and one-eighth of an inch; greatest width three-eighths of an inch.

Locality. Vicinity of Petersburg. Mr. Tuomey.

BUCCINUM.

BUCCINUM *harpuloides*. Ovate, ventricose, with alternated revolving raised lines, and longitudinal slightly oblique rather distant narrow elevated ribs: spire scalariform, volutions five; base of the shell with an oblique carina; aperture half the length of the shell; columella profoundly concave, with a prominent fold or carina on the angle formed by the obliquely truncated base; a slight protuberance near the superior extremity of the aperture; margin of labrum nearly straight, suddenly rounded inferiorly. Length, one inch; width, five-eights of an inch.

FUSUS?

FUSUS? *cannabinus*. Fusiform; whorls six or seven, with longitudinal rounded costæ, and revolving prominent alternated lines finely wrinkled transversely; spire somewhat scalariform, elevated; suture undulated;

body whorl abruptly round its base; beak short, subperforate, tortuous; aperture with the channel rather less than half the length of the shell; labrum with eight short dentiform prominent striæ within. Length, one inch and a quarter.

Locality. Petersburg, Virginia. Mr. Tuomey.

Closely resembles FUSUS *cinereus*, Say, but the whorls are more scalariform, and the body whorl much shorter and more abrupt at base; the beak narrower and more tortuous.

TEREBRA.

TEREBRA *curvilirata*. Subulate, whorls with a revolving impressed line below and near the suture; beneath this line the whorls are convex; ribs longitudinal, curved, acute, dislocated by the impressed line; revolving lines minute, crowded, obsolete; columella sinuous. Length one and a quarter inches.

Locality. St. Mary's river, Maryland.

Differs from CERITHIUM *dislocatum*, Say, in wanting the distinct revolving lines, and the small dislocated portion of the ribs are not of a tubercular form; the aperture is longer and narrower.

POLYPARIA.

TURBINOLIA.

TURBINOLIA *pilsolus*. Obtusely obconical, slightly compressed, periphery with an oval outline; lamellæ smooth, of equal thickness, united to an elliptical centre; between each plate is one, sometimes two short irregular lamellæ, either free or united to the base of the larger rays. Length, nearly half inch; diameter, half inch.

Locality. Pamunkey River, Kent Co., Virg. Mr. Tuomey.

ECHINODERMATA.

SPATANGUS.

SPATANGUS *orthonotus*. Ovate, convex-depressed; truncated at each end, more elevated anteriorly than posteriorly; dorsal line of the suture a little elevated, and curved gradually to the mouth on the anterior half; on the posterior, straight to the margin and parallel to the base; canal very wide and slightly impressed on the back, margined by an obtuse carinated line and slight furrow; on the periphery the canal is deep and angular; ambulacra rapidly expanding from the extremities towards the dorsal suture; pores disunited; in the middle of the back a slight furrow crosses obliquely each of the anterior ambulacra at its termination; base plano-convex; anus large and remote from the margin; granulations on the back minute and very closely arranged, in the canal much larger and unequal in size; base with large tubercles, becoming gradually smaller and more closely arranged towards the margins. Length, two inches and three-eighths; diameter, two inches and an eighth; height, one inch and an eighth.

Locality. Near Coggins' Point, James River, Virginia. Mr. Tuomey.

OBSERVATIONS.

In 328 species of organic remains already described, independent of minute and uncertain forms, 43 have been found in a recent state; and when to these are added numerous very small shells which are found in every careful examination of marl from the various localities, the percentage of recent species may be pretty accurately estimated at about 11 or 12 per cent. This result I have obtained by a careful exploration of the fossiliferous beds, and two visits to the shores of Florida and Alabama to procure recent forms for comparison with those of the Miocene strata. The last trip furnished three recent shells before known only in the fossil state.

Several species described in the preceding pages I obtained during a recent excursion to Petersburg, Virginia, at the kind invitation of Mr. Tuomey. In the course of a few hours examination of the marl in the vicinity in three or four days, I collected about 100 distinct species. This locality is peculiarly interesting; being the western limit of the Miocene, having a considerable elevation above tide, and based on granite, it is the spot in which to search for the estuary and fresh water shells of the Miocene period. Mr. Tuomey has already found an extinct *Cyrena*, and a univalve not very unlike* PALUNDINA *sub-purpurea*, (Say,) whilst I discovered a species of *Cerithium*, identical with a shell which I found last spring inhabiting oyster beds in the Manitee river, near its junction with Tampa Bay. It is about the size and nearly resembles C. *trilineatum*, figured in Kiener's work.

The elevation of the Petersburg Miocene is considerably more than 100 feet above tide, and as the rise decreases towards the sea, it is probable that the primary rocks continued to be uplifted even after the era of the Miocene; indeed how can we otherwise account for the elevation of fossiliferous beds, even of those of the Post-Pliocene period?

It is an interesting fact that the Miocene estuaries were inhabited by two species of bivalves, now extinct, of the same two genera which still occur in similar situations in Florida and Alabama, that is at the confluence of rivers and bays, where the water is nearly fresh. These genera are *Gnathodon* and *Cyrena*, both of the family CYRENADÆ. The extinct *Gnathodon* has a considerable resemblance to the recent species, but the *Cyrena* is widely different from the living shell. These fossils are frequently water-worn, always with disunited valves, and appear to have been transported. Occasionally a specimen occurs not in the least abraded, a circumstance which indicates the vicinity of the Petersburg deposits to the mouth of the river. The strata occur in a meadow, and consist of blue marl of a sandy texture, often intermixed with small gravel, and of ferruginous sand, full of shells; there is here also a proportion of gravel, of rounded quartz, occasionally of large size. Water-worn fragments of bivalves are abundantly intermingled with entire shells, and many species occur with connected valves. This is particularly the case with the burrowing shells, as *Panopæa*, but also, though less frequently, with the large VENUS *tridacnoides*, CRASSATELLA *undulata*, ASTARTE *concentrica*, CYTHEREA *albaria*, two species of *Chama*, and even two species of *Ostrea* are not uncommon; but

* P. glaber (Terbo glaber, Lea.)

there is nothing like an oyster bed in these strata which might indicate shoal water. The proportion of oysters to the other bivalves is about the same which the dredge furnished at the mouth of Cape Fear river, N. C., at the depth of 8 fathoms.

With the many interesting bivalves of Petersburg I found a valve of the beautiful

PHOLADOMYA *abrupta*,

which Deshayes has referred to *Panopæa*. I carefully removed the marl from the hinge, in order to ascertain if there was an erect curved tooth as in *Panopæa*, but the hinge proved to be destitue of any kind of tooth or process, and closely resembles that of the recent *Pholadomya*. Two characters, therefore, remove this shell from the genus *Panopæa*; the pearliness of the substance and the absence of a cardinal tooth. A true *Panopæa* is never pearly, any more than a Unio is ever otherwise.

Observations on the Lead Bearing Limestone of Wisconsin, and descriptions of a new genus of Trilobites and fifteen new Silurian fossils.

By T. A. CONRAD.

As the galeniferous limestone of Wisconsin and Galena has attracted the attention of our most distinguished Geologists, who have endeavored to assign its relative position in the scale of formations, I hope it may not be deemed presumptuous if I endeavor to assist in settling a question of so much importance. The difficulty has hitherto arisen from the scarcity and obscurity of characteristic fossils, which is now in a great measure removed. Some years since I had the pleasure of examining a series of organic remains collected by Richard C. Taylor, Esq. at the lead mines in Wisconsin, and then distinctly recognized the species which belong to the Trenton limestone of New York, a rock which, in my first report on the Geology of New York, I showed to be an independent formation, and entirely distinct from any above or below it. Since then I have proved its occurrence at Cincinnati, in Ohio, and at Carlisle and Bedford Springs, Pennsylvania. In these remote localities the fossils are generally the same species, and the group of a unity which admits not of doubt or ambiguity.

The specimens found by Mr. R. C. Taylor are chiefly from the limestone below the lead, and consist of BELLEROPHON *bilobatus*, (Sowerby.)

There are also specimens of fossiliferous limestone from Cassville, Wisconsin, of the same age, containing a Trenton limestone species of *Orthis* like C. *callactis*, a *Naculite*, occurring also near Middleville, N. Y.,[8] BELLEROPHON *bilobatus*, a *Strophomena* like ORTHIS *alternata*, Sowerby, a common shell in the New York Trenton limestone, and an *Orthis* resembling O. *testudinaria*, still more abundant in the same rock.

In the same collection are carboniferous fossils, in limestone and in chert, from St. Genevieve, Missouri. The species consist of a large BELLEROPHON, three species of PRODUCTUS and one of *Atrypa*, all of which are found only in the carboniferous or mountain limestone.

I am indebted to the liberality of Mr. Stephen Taylor, who has recently returned to this city from Mineral Point, Wisconsin Territory, for an op-

portunity to investigate some organic remains of more than ordinary interest, which that gentleman procured at the lead mines. Accompanying these are specimens of fossiliferous limestone, shells, and fragments of *Trilobites* in beautiful relief upon the surface, and so familiar and characteristic, that at the first glance I recognized the Trenton limestone of New York. The most prominent of these fossils consist of the *trilobites*, CERAURUS *pleurexanthemus*, ISOTELUS *gigas*, and ILLÆNUS ——; and of the shells, STROPHOMENA *sericea*, PHRAGMOLITES *compressus*, and BELLEROPHON *bilobatus*. With these are large *Cytherina*, known also to occur in the Trenton limestone of New York: the TEREBRATULA (*Atrypa*) *Schlottheimii* of Von Buch, and some beautiful new species of bivalves. The limestone is very compact, replete with shells and favosites, of a light color, inclining to drab, and it immediately underlies the rock in which the galena occurs, as Mr. Taylor informs me. Many of the fossils are loose and exceedingly well preserved, having apparently come from a soft limestone shale.

In examining, a few years since, some specimens of limestone brought from Galena, by the late lamented Nicollet, and which he informed me was the rock immediately *below the lead-bearing strata*, I recognized the group of fossils which characterize the Trenton limestone, but Mr. Nicollet was unable to procure any organic remains from the overlying rock, which might furnish a clue to its geological age. Mr. Taylor has fortunately obtained this desirable object, in Wisconsin, having discovered not only well preserved fossils, in the lead-bearing formation, but even shells and remains of Crinoidea replaced by the sulphuret of lead. There is particularly the cast of a large *Turritella* composed entirely of this mineral, and a specimen of PLEUROTOMARIA *angulata*, which is a limestone cast, with the upper part of the spire of galena, and from fragments yet remaining between the caste and matrix, it is evident that the shell itself had been replaced by the sulphuret of lead. These two shells are not uncommon in the Trenton limestone of Lewis county, New York. The *Turritella* I have never known to occur in any other formation, but the *Pleurotomaria* I found also in the Salmon river, or Pulaski shale, near Rome, Oneida Co. Mr. Taylor has likewise a crinoidal column, almost wholly replaced by galena; it has distant very prominent rings or ridges, and is a species which has been observed in the Trenton limestone of New York.

From the evidence it is clear that the limestone of Galena, Illinois, and of Mineral Point, Wisconsin, in which the lead occurs, is certainly not of more recent date than the Pulaski and Lorraine shales of New York, and the caradoc sandstone of Great Britain; but I believe it will prove to be an upper member of the Trenton limestone formation.

Mr. Taylor has also a specimen of Trenton limestone, precisely similar to that of Galena and Mineral Point, which was found in Wisconsin, 40 miles N. E. of Galena.

There is a specimen of the sulphuret of lead, among the cubes of which is imbedded a single valve of *Strophomena*, very thin and silicified.

Mr. Taylor brought the PENTAMERUS *oblongus*, CATENIPORA *escharoides*, and C. *labyrinthica*, which were found together on one of the hillocks or "mounds," as they are termed in Wisconsin. These two fossils, when

associated, characterize the upper part of the Caradoc sandstone, (Clinton group of New York.)

The lead-bearing rock is a buff-colored granular limestone, and contains the following species of organic remains, all of which have been found in the Trenton limestone, except the two printed in italics:—

Univalves.	*Bivalves.*
Inachus pervetus, Con.	Orthis testudinaria?
Pleurotomaria angulata, Sowerby.	Delthyris ———
Turritella ———	Strophomena sericea.

Coral.

Cyathophyllum profundum, Con.

There is also the post-abdomen of an undetermined trilobite and various forms of crinoidal vertebræ.

In the Trenton limestone of Mineral Point, the following species of organic remains were collected by Mr. Taylor:—

Shells.	*Shells.*
Cyrtoceras marginalis, Con.	Orthis disparilis, Con.
Orthoceras annellus, Con.	—— perveta, Con.
Phragmolites compressus, Con.	—— tricenaria, Con.
Turritella ———	—— bellarugosa, Con.
Pleurotomaria angulata, Sowerby.	—— subequata, Con.
Bellerophron bilobatus, Sow.	Atrypa (Tereb.) Schlottheimii, (Von Buch.)
Euomphalus triliratus, Con.	Nuculites, 2 species.
Inachus pervetus, Con.	
Subulites elongata.	
Delthyris ———	*Crustacea.*
Strophomena sericea, Sow.	Ceraurus pleurexanthemus, Green.
——— deflecta, Con.	Isotelus gigas, Dekay.
——— recta, Con.	Thaleops ovata, Con.
Orthis testudinaria?	Cytherina fabulites, Con.

THALEOPS.

Capite lunato, trilobato, oculis distantibus, eminentissimis, non reticulatis; trunco 10-articulato, valde trilobato; lateribus expansis, medio angulatis; costis integris; post-abdomine trilobato, minimo; costis nullis.

Ovate, profoundly trilobed, lateral lobes wider than the middle lobe; buckler lunate, with very remote oculine tubercles, not reticulated; abdomen with 10-articulations; ribs without grooves and not alternated in size; outer half of lateral lobes suddenly depressed; post-abdomen without ribs or grooves, and profoundly trilobed.

This genus is remarkable for the great width of the buckler, and the very prominent laterally projecting smooth oculine tubercles. It differs from *Bumastus* in being profoundly lobed, and in having the side lobes as

in Asaphus much wider than the middle lobe. From *Illænus* it may be distinguished by its ovate form, want of reticulated eyes, the width of the lateral lobes, and the profound lobes of the tail.

The genus *Thaleops* characterises the Trenton limestone formation of the Lower Silurian group.

THALEOPS *ovata*. Obtusely ovate, surface minutely punctate; head very wide, lunate, involuted; eyes very prominent, rounded, smooth, placed on a line with the angle in the middle of the side lobes; ribs flattened, smooth, without a border at the extremities where they are rounded and not expanded; post-abdomen with the middle lobe convex, rounded and well defined at the extremity; inferior margin obtusely rounded. Length two-thirds of an inch; width of buckler three-quarters of an inch.

Locality. Mineral Point, Wisconsin, (blue limestone quarry,) Mr. Taylor.

This rare trilobite may be studied as well in Mr. Brano's excellent model, as in the natural specimen. It is probably a rare fossil that few naturalists will be able to procure, and for this reason we would recommend the model to those who are desirous to have a knowledge of the genus.

Wherever many entire trilobites are found, a very quiescent state of the waters wherein the rock which contained them was deposited, may be inferred from the abundance of scattered bucklers and post-abdomens, which occur in other strata where there is no evidence of violence on any of the delicate shells accompanying them; the articulations of the abdomen were therefore held together by a frail ligament, whilst the post-abdomen, although ribbed in many species, was in all composed of an inarticulated crust, and thus is almost always preserved entire in the rock.

CRUSTACEA.

CYTHERINA.

CYTHERINA *fabulites*. Ovate, reniform, smooth, with a slightly concave or truncated cardinal margin, the extremities of which are angulated; end margins rounded. Length, half an inch.

Locality. Mineral Point, Wisconsin, (Trenton limestone.)

SHELLS.

STROPHOMENA.

1. STROPHOMENA *deflecta*. Semi-oval; superior valve slightly concave, deflected at the angles, the other valve reflected; radii very closely arranged, prominent, subequal, minutely crenulated; inferior valve slightly depressed in the middle; cardinal area wide; superior margin of the concave valve rather elevated. Breadth, half an inch.

Locality. Ibid, (Trenton limestone.)

2. STROPHOMENA *recta*. Semi-oval, with angulated slightly prominent hinge extremities; radii strongly defined, numerous, minutely crenulated; superior valve flat, with a prominent umbo; inferior valve depressed,

with a wide mesial furrow: cardinal area of the valves equal. Breadth, rather more than half an inch.

Locality. Ibid, (Trenton limestone.)

Resembles the preceding, but differs in the equal hinge areas, in being much more compressed, in having a proportionally longer hinge line, with more angulated extremities, &c.

ORTHIS.

1. O. *disparitis.* Semi-circular, with about twenty-eight prominent rounded regular ribs; larger valve rather prominent in the middle; the sloping sides flattened; middle rib bifid; lesser valve slightly concave, somewhat depressed or furrowed in the middle, the termination slightly contracting the base; lateral margins regularly rounded inwards from the angular extremities of the hinge; cardinal area wide. Length, one-fourth of an inch; breadth, one-third of an inch.

Locality. Ibid, (Trenton limestone.)

2. O. *pervata.* Transversely oval, wider than the length of the hinge line; valves slightly ventricose, subequal, with numerous prominent radiating rounded striæ, bifurcated on the umbo; larger valve ventricose in the middle, with a slight central depression; sides somewhat depressed; the opposite valve flattened towards the base, and depressed to correspond with the elevation of the other valve, forming a sinuous margin when viewed in profile; base truncated; superior lateral margin obliquely truncated, rounded inferiorly. Length one-third of an inch; breadth nearly half an inch.

Locality. Ibid, (Trenton limestone.)

3. O. *tricenaria.* Semi-oval, with about thirty prominent very regular rounded ribs; larger valve ventricose; summit elevated; the dorsal margins subrectilinear, very oblique; lesser valve flat or slightly concave in the middle; cardinal area very wide; apex of the larger valve profoundly elevated above that of the opposite valve. Length, three-fourths of an inch.

Locality. Ibid, (Trenton limestone, Lower Silurian.)

4. O. *bellarugosa.* Semi-oval; valves nearly equally convex; lesser valve with a mesial subangular furrow; ribs prominent, linear, with unequal bifurcations; disks with numerous concentric prominent subsquamose wrinkles; apex of larger valve not much elevated above that of the opposite valve; cardinal area rather wide. Length, less than half an inch.

Locality. Ibid, (Trenton limestone.)

5. O. *subequata.* Semi-oval; valves ventricose, subequal; lesser valve with a slight subangulated mesial furrow; larger valve prominent in the middle, with flattened sides; radiating striæ fine, closely arranged, unequal, rounded, cardinal area rather wide; apex of larger valve prominent, not profoundly elevated above the opposite beak; the dorsal margins concave. Length, half an inch.

Locality. Ibid, (Trenton limestone.)

EUOMPHALUS.

E. *trilineatus.* Discoidal; volutions margined by a profound channel and a carinated line and with a wide concave furrow from this line to the cari-

nated periphery; margin truncated, direct, tricarinated; disk and base with sharp prominent transverse sinuous lines. Length, one-third of an inch.

Locality. Ibid, (Trenton limestone.)

CYRTOCERAS.

C. *marginalis.* Rapidly increasing in size from the apex; the portion without septa straight on the inner margin; septa closely arranged and slightly sinuous; siphuncle marginal. Length of fragment, four inches; greatest breadth, one and seven-eighths of an inch; at the smaller end, where it is broken off, half an inch.

Locality. Ibid, (Trenton limestone.)

This species does not appear to have been greatly involuted; about twenty-five septa remain. It is a cast in compact limestone.

ORTHOCERAS.

O. *annellus.* Elongated, tapering, with very prominent, not approximate, acute slightly sinuous transverse ribs, with very fine crowded profoundly wrinkled longitudinal lines; siphuncle submarginal. Length of fragment, one inch and a half; breadth, half an inch at the larger end; three-eighths of an inch at the opposite end.

Locality. Ibid, (Trenton limestone.)

INACHUS.

I. *perversus.* Flattened above and sloping slightly inwards; periphery angulated; from the periphery to the base slightly convex and sloping inwards; base acutely rounded or subangulated. Breadth, one inch and one-third: greatest diameter, one-third of an inch.

Locality. Ibid, (Lead-bearing limestone.)

TURRITELLA.

T. ———. Turritted; whorls six or seven; profoundly convex; rapidly increasing in size from the apex. Length, three inches.

Localities. Mineral Point. Wisconsin, Lewis county, New York. (Trenton limestone.)

This species occurs in casts, and is the largest shell of a turritted form yet known in the Silurian system of this country.

CRINOIDEA.

PENTREMITES.

P. *truncata.* Subovate, or cylindrical; ambulacra narrow, convex, with distinct numerous rather fine transverse lines; scapula concave, with carinated margins; base truncated, sides slightly convex, the lower half nearly direct. Length, five-eighths of an inch; breadth, half an inch nearly.

Locality. Edwardsville, Madison county, Illinois.

This species differs from all others that are published in the truncated base, the points of the ambulacræ being on a line with the centre of the pelvis, independent of the elevation of the alimentary canal.

POLYPARIA.

CYATHOPHYLLUM.

C. *profundum*. Conoidal; base incurved, single, acutely pointed; longitudinal lines obsolete; interior profoundly excavated, with a thin erect margin; lamellæ rough, very prominent, alternated with a short intermediate finer one.

Locality. Mineral Point, Wisconsin, (Lead-bearing limestone.)

The Recording Secretary then read his Annual Report, which was ordered to be published in the Proceedings.

REPORT

OF THE

RECORDING SECRETARY

For the year 1843.

In the Report, which a twelvemonth since, in accordance with the established rule of this Institution, it became my duty to present, it was the design throughout to place before you a candid statement, embracing every circumstance which it was believed would tend to give an encouraging view of its condition at that time, and of its future prospects.

A review of its proceedings for the present year will furnish conclusive evidence that we have continued reason to be gratified with its position and success.

At home and abroad, its members, correspondents, and friends have given ample proof of their zeal and interest in its welfare. The contributions to its Library and Collections have equalled those of former years; its usefulness has been thereby increased, and the field for investigation and the study of the Natural Sciences enlarged. In all the departments this has been the case, as the following summary will show:

In Geology and Mineralogy there have been received twenty-three donations from the following: Drs. Burrough, Morton, Elwyn, Blanding, Lafon; Goheen, of Liberia, Africa; D. D. Owen, of New Harmony, Indiana; Fussell, of Indiana; B. B. Brown, of St. Louis; Professors Forchey, of Natchez, and H. D. Rogers; and from Messrs. French and Demeatre, of New Orleans; Codwise, of St. Croix; J. Cassin, S. B. Ashmead, W. S. Vaux, G. R. Gliddon, Marsh, Land, Lessig, and Stephen Taylor, Jr.

In Ornithology, eight donations, from Dr. G. Watson, and Messrs. J. Cassin; Baird, of Carlisle, Pennsylvania; J. G. Strain, U.S.N.; J. Dundas, and Miss Percival, of Philadelphia.

In Zoology, three donations, by Mr. Cassin, and Dr. Wm. Blanding.

In Entomology, ten donations, by Drs. Watson, Owen, and Blanding; and Messrs. Kilvington, Ashmead, Cassin and Strain.

In Ichthyology, six donations, by Dr. J. Carson; and Messrs. Cassin, W. B. Maull and Philip Lowry, Jr.

In Herpetology, seven donations, by Messrs. James Read, W. S. Vaux, J. G. Strain; B. M. Norman, of New Orleans; and Drs. Goheen, C. W Pennock and P. B. Goddard.

In Helminthology, one donation, by Mr. William G. Burke.
In Conchology, seven donations, by Messrs. J. G. Anthony, of Cincinnati; C. M. Wheatley, of New York; Dr. J. C. Jay, of do.; Professor Forchey; Mr. Thomas Beasley, of New Jersey; and Messrs. Ashmead and Cassin.
In Osteology, two donations, by the Messrs. Baird, of Carlisle, and Dr. Goheen.
In Botany, five donations, by Messrs. J. N. Nicollet, P. A. Browne; Mr. Codwise, of St. Croix; Mrs. Wm. S. Biddle, of Philadelphia; and Dr. Goheen.

The most interesting and valuable accession to the Museum during the year has been that of an articulated skeleton of an adult male Chimpanzee, Troglodytes niger, Geoff., received from Dr. S. M. E. Goheen, of Liberia, Africa, and one of the Correspondents of this Institution. The skeleton is deficient only in the sternum, the two patellæ, and some of the smaller phalanges of the feet and hands. For these, similar bones of a young human subject have been substituted, so that the specimen appears perfect.

I have the satisfaction to state that, during the last season, the interest in the Entomological department has been revived, and that to several sources, but especially to our fellow members, the Messrs. Ashmead, Mr. Kilvington and Dr. Watson, is the Academy indebted for a considerable accession of native insects. For a long period, little or no effort has been made in this department. The valuable collection presented to the Academy by the late Mr. Say has been entirely lost or destroyed, and the beautifully arranged and costly cabinet of Drs. McMurtrie and Pickering has very nearly shared the same fate. Of other minor donations the bare fragments can be found. Various plans have been resorted to, in the hope of preventing these losses, but hitherto without success. Under such discouragements, it is not surprising that this department should have been neglected of late. To the donations mentioned, have been added the best and most perfect specimens selected from the collection of Drs. McMurtrie and Pickering, and all have been carefully disinfected by exposing them to a high temperature for many hours. A new method for preserving them from future injury has been adopted, which it is believed will be effectual.

The collection of Reptilia, during the last summer has been removed from the Hall to the room on the ground floor, and now occupies the cases formerly containing the collection of crania belonging to Dr. Morton. The members must have observed great improvement in the new arrangement of the specimens, which have been greatly increased in number, and each one carefully examined, the bottles and jars containing them refilled with alcohol, and new labels added. In fact, the extent and value of this collection could not previously be properly appreciated. It will now bear comparison with any in this country.

The large and fine collection of Birds in skin, possessed by the Academy, has been thoroughly overhauled and the imperfect specimens, or which have sustained injury from insects, have been removed, and the rest disinfected by exposing them to a high temperature in a large copper apparatus provided for the purpose. The collection is now in the best order for mounting or exchange.

The accessions to the Library have exceeded those of the year previous. They consist of one Folio; eleven works in quarto form, including the Memoirs and Transactions of learned Societies; sixty-five octavos and duodecimos, including Journals, Annals, Bulletins, &c.; and seventy-two productions in pamphlet form, or in numbers, consisting of Reports, Proceedings of Societies, addresses, discourses, memoirs, &c. To these are to be added several manuscripts, charts and engraved copper plates. Of the whole number contributed, twenty-nine have been derived from Societies, sixty-three from Members, and the remainder, amounting to sixty seven, from correspondents, authors, editors, &c.

The papers read before the Society, and published in its Proceedings between the 1st of January and 1st of November of the present year, are four in number. The first is by Mr. William Gambel, of this city, and contains descriptions of some new and rare birds of the Rocky Mountains and California, the tour of which he has recently made. The second is from the Messrs. Baird, of Carlisle, Pennsylvania, and describes two new species of Tyrannula, from Cumberland county, Pennsylvania. The third by Mr. Haldeman, is entitled a "Catalogue of the Carabideous Coleoptera of South Eastern Pennsylvania, and descriptions of new North American species of Coleoptera:" and the fourth paper entitled "Descriptions of a new genus, and of twenty-nine new Miocene, and one Eocene fossil shells of the United States," is contributed by Mr. T. A. Conrad.

The publication of the Proceedings has been regularly continued during the year. It has now attained sufficient bulk to authorise the Committee to bring the first volume to a close with the coming number. On the first of November last, two years and seven months had elapsed since the first number was commenced, and in that period 311 pages of matter selected from the minutes of the meeting have been issued, or an average of about 120 pages annually. As every care is taken in the style and execution of this periodical, to render it worthy of the Institution whence it emanates, and a considerable expenditure is therefore incurred, it is proposed to give here a condensed summary of the contents of the present volume, as far as published, in order that some idea may be formed of its merits and utility.

Its first and most obvious advantage is in being a medium for communicating to the scientific public discoveries and observations at short intervals of time, and thus often enabling the claim to priority to be securely established. There have been, with this view, offered to the Society, and printed either entire or in part in its Proceedings, during the period above mentioned, upwards of thirty original papers on scientific subjects, the titles and authors of which are as follows:

By Dr. S. G. Morton, two papers, viz., "Descriptions of several new fossil shells from the cretaceous deposits of the United States," and "Descriptions of two new species of fossils from the lower cretaceous strata of New Jersey." By Mr. T. A. Conrad, three papers; "Descriptions of three new species of Unio from the rivers of the United States;" "Descriptions of twenty-six new species of fossil shells from the medial tertiary of Calvert Cliffs, Maryland," and "Descriptions of a new genus, and of twenty-nine new Miocene, and one Eocene, fossil shells of the United States." By Professor Johnson, two papers; "An examination and analysis of coal from Arauco, Chili;" and "On the relation between the coal of South Wales and some Pennsylvania Anthracites." By Mr. Phillips, three papers; "Descriptions of two new American species of

Helix;" "Memorandum of dates of publication of papers in the early numbers of the Journal of the Academy," and "On the nomenclature of Natural Science." By Mr. Haldeman, the following papers: "Descriptions of new species of Cyclas;" several on new species of Cypris; "Descriptions of two new fresh-water shells of the genera Amnicola and Physa;" "of another new species of Cyclas;" "of a genus of Sterelmintha;" "of two species of Entomostraca, and two Hydrachnæ;" "of a new Daphnia;" several on changes of nomenclature in Natural History; a "Catalogue of the Carabideous Coleoptera of South Eastern Pennsylvania, and descriptions of new species of North American Coleoptera;" and "Description of a new species of Pasimachus." By Dr. Hallowell, a paper describing a new species of Chamæleon from Africa. By Dr. Benj. H. Coates, a paper on "The natural alliances of the genus Cecidomyia." By Peter A. Browne, Esq., a portion of a paper containing strictures on terms used in vegetable physiology. By Mr. William Gambel, "Descriptions of some new and rare Birds of the Rocky mountains and California." By the Messrs. Baird, of Carlisle, Pennsylvania, "Descriptions of two new species of Tyrannula from Cumberland county, Pennsylvania." By Professor Locke, of Cincinnati, "Observations on Cryptolithus tesselatus." By J. Hamilton Couper, of Georgia, "A description of the strata in which were found the valuable fossil bones and shells from the Brunswick Canal," presented by him to the Academy. By Dr. Clapp, of New Albany, Indiana, a paper in reference to the geological equivalents of that vicinity, and of those of the falls of the Ohio. By Miss Morris, of Germantown, "Observations on the development of the Hessian fly." By Messrs. Audubon and Bachman, "Descriptions of new species of North American Quadrupeds;" and by Dr. Ravenel, of Charleston, "Descriptions of several new fossil Scutellæ."

The communications made before the Society in a verbal form, and recorded in the Proceedings, are even more numerous, and contain much information on important and interesting facts in natural science. The limits to which this Report is necessarily restricted, will only admit of the mention of the names of those gentlemen who have most largely contributed to this portion of the Proceedings. There are—from Dr. Morton, six communications; from Prof. Johnson, twenty; Prof. Rogers, five; Mr. S. S. Haldeman, four; Dr. B. H. Coates, three; Mr. Phillips, two; Dr. George C. Leib, three; Dr. Chaloner, four; Mr. Joseph A. Clay, one; Dr. Blanding, one; Dr. Bridges, two; Prof. Bailey of West Point, one; Mr. Quimby, two; Dr. Goddard, five; Mr. George R. Gliddon, two; Dr. Elwyn, one; and from Dr. Owen, of New Harmony, two.

This publication also records for the period mentioned, 219 donations to the Museum of the Society from 110 individuals; and 281 donations to its Library, 68 of which are from Societies, and 213 from individuals.

Another most important advantage derived from it is in its general distribution to foreign and domestic Societies and correspondents. Nearly one hundred and fifty copies of each number as it appears, are sent, not only in every direction throughout the Union, but to various sections of the globe, and a correct knowledge of the character and standing of this Institution is thus widely diffused. I have transcribed from the Memorandum Book of the Corresponding Secretary, the following list of Societies receiving copies of the Proceedings, either regularly or as opportunity offers:

Royal Society of London; Botanical Society of London; Zoological

Society of do.; Linnean Society of do.; L'Institute Royale de France; Ecole Royale des Mines, at Paris; Societe Entomologique de Paris; The Royal Society of Edinburgh; L'Academie Royale des Sciences, Stockholm; L'Academie Royale des Sciences et Belles Lettres, Brussels; Academia de Ciencias Naturales, Madrid; L'Accademia Reale delle Scienze, Turin; Société Imperiale des Naturalistes de Moscou; Royal Academy of Sciences of Berlin; Academy of Sciences of St. Petersburg; Royal Academy of Sciences of Munich; Royal Botanical Society, Ratisbon; Asiatic Society of Bengal; and the Egyptian Society at Cairo.

The domestic Societies are as follows:

American Philosophical Society; Franklin Institute; Philadelphia Athenæum; Albany Institute; New York Lyceum of Natural History; Natural History Society of Boston; National Institute at Washington; Franklin Society of Providence, Rhode Island; U. S. Naval Lyceum at Brooklyn; and Northern Academy of Arts and Sciences at Hanover, New Hampshire.

Letters of acknowledgment of the reception of the Proceedings by these Soceties, and by numerous Correspondents, are constantly read before you.

In short, the reputation of this Institution has been greatly enhanced since the adoption of this mode of publishing periodically an account of its Transactions, and the propriety of its continuance cannot be questioned.

Three alterations in the By-Laws have been made during the present year. The first reduces the amount of the Initiation fee from $10 to $5, and the second reduces the amount of a life subscription from $80 to $50. Both of these alterations have been in contemplation for a length of time, but no action determined on until within the last few months, when the expediency and even necessity of adopting them were so obvious as not to admit of longer delay. The third alteration requires of Correspondents residing within the United States, elected after the 31st of January, 1843, a small diploma fee. This is a measure which the Society is justly entitled to adopt, and is only in accordance with the usage of most Institutions of a similar character. The demand has been cheerfully complied with in every instance where the receipt of his notice of election has been acknowledged by a Correspondent.

Between the 1st of January and the 1st of December of this year the Academy has added eleven new Members and twenty-one Correspondents to its list. Of the latter, twelve reside in the United States, and nine are foreign. The number of members elected is nearly double the average of the three preceding years.

The finances of the Academy are in a most favorable condition, as the Report of the Treasurer will show. The right of way to a small portion of the lot in the rear of the building, was disposed of in the early part of the year for the sum of $660, to the holders of the adjoining property. The offer was an advantageous one to the Academy, and was promptly accepted by it. A heavy ground rent held by the original owners of the lot on which this building is erected, has been recently paid off by the next purchaser. This is a source of some gratification to the Academy, as relieving it from a possible contingency which might involve its in-

terests in some degree. By the prudent management of the Treasurer, the Institution has been enabled to meet all its ordinary annual expenses, and some new arrangements for the coming year proposed by him, will, if carried out, materially lessen its remaining obligations, which, although now comparatively light, still prevent that entire appropriation of its annual income to the general purposes of the Institution, which is so ardently desired by all its members.

All which is respectfully submitted by

W. S. ZANTZINGER,
Recording Secretary.

Hall of the Academy, December 26th, 1843.

The Report of the Treasurer was read, and referred, as usual, to the Auditors for examination.

NEW BUSINESS.

Professor Johnson offered the following resolutions, which were unanimously adopted:

Resolved, That the extended and valuable Report of the Recording Secretary, presented this evening, contains the most gratifying evidences of the prosperity of this Institution, and of the assiduous devotion of the Secretary to his various duties.

Resolved, That the thanks of the Society be presented to the Recording Secretary for his labor in preparing this Report, and that the same be referred to the Committee on the Proceedings for publication.

Mr. Philips offered the following resolution, which was also unanimously adopted:

Resolved, That the thanks of the Society be presented to Mr. George W. Carpenter, for the ample and gratifying report of the financial concerns of the Institution presented this evening, and for his assiduous and successful attention to the trust confided in him.

The Society then proceeded to an election for Officers for the ensuing year. The tellers appointed by the chairman announced the following result:

PRESIDENT.

William Hembel.

VICE PRESIDENTS.

John Price Wetherill,
Samuel George Morton, M. D.

CORRESPONDING SECRETARY.

Walter R. Johnson.

RECORDING SECRETARY.

Wm. S. Zantzinger, M. D.

TREASURER.

George W. Carpenter.

LIBRARIAN.

Alfred L. Elwyn, M. D.

CURATORS.

Wm. S. Vaux,
Samuel Ashmead,
John Cassin,
Gavin Watson, M. D.

AUDITORS.

William S. Vaux,
Robert Pearsall,
Robert Bridges, M. D.

COMMITTEE OF PUBLICATION.

A. L. Elwyn, M. D.,
T. A. Conrad,
Edmund Draper,
John Simmons,
William S. Vaux.

The following gentlemen were elected Correspondents of the Academy:

Mr. John Van Cleve, of Dayton, Ohio.
Prof. James Hall, of Albany, New York.

And

Daniel Keyser, of Philadelphia, a Member of the same.

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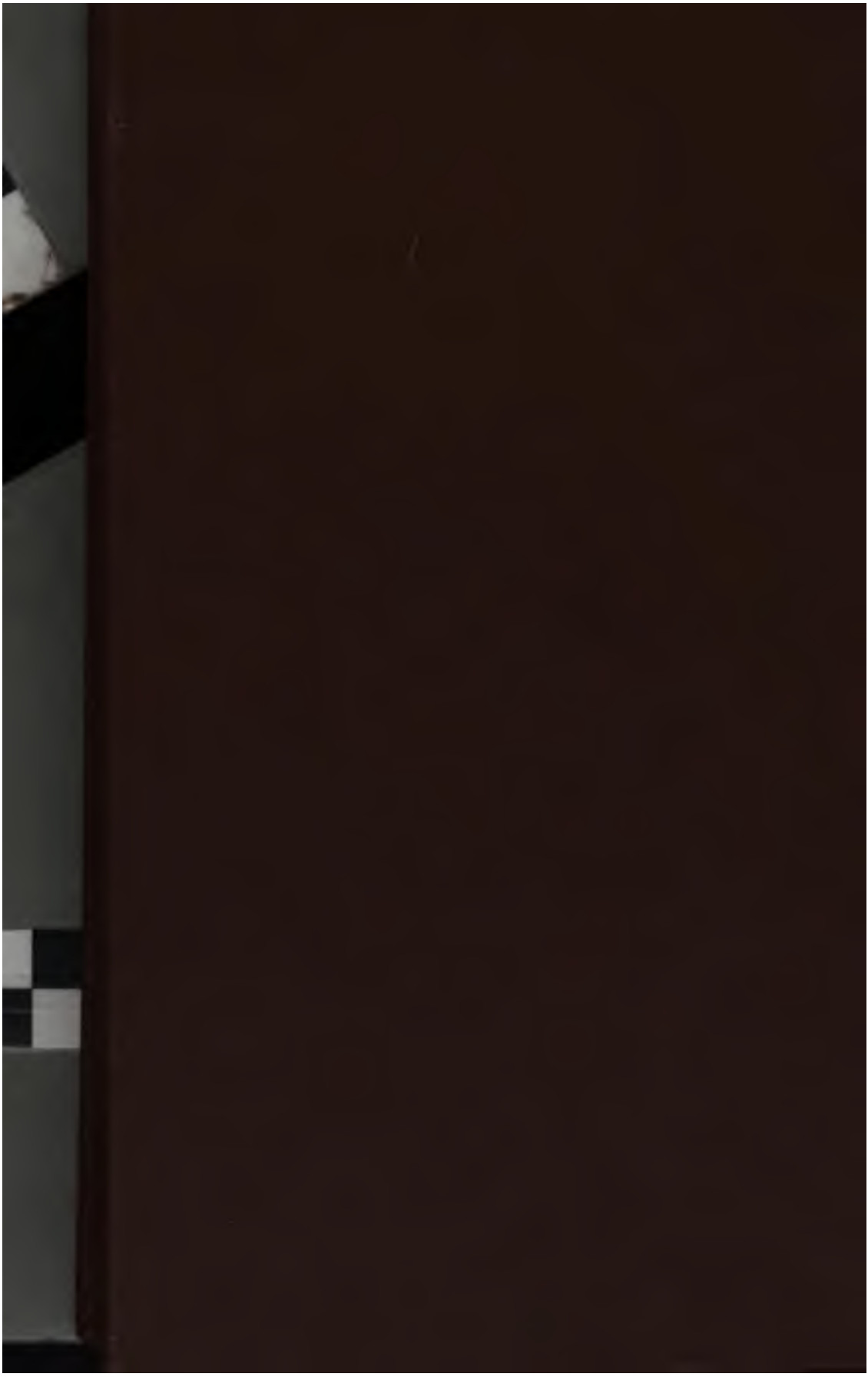
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